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ABSTRACT

In an attempt to gain some understanding of the actual results of the State of Washington's certification policies and the institutions approved under those policies, data were collected on students who received first teaching certificates from public teacher education institutions. Data were gathered on 1,540 students from Central Washington University, Eastern Washington University, University of Washington, Washington State University, and Western Washington University. Four broad categories of data were included: (1) certification data--basic demographic information and information on the type of certificate granted and levels for which the certificate was endorsed; (2) academic data--dates of graduation and program completion, cumulative and major grade point averages, and student majors and minors; (3) admissions test data--composite verbal and quantitative scores on the Washington Pre-College Test; and (4) initial employment data--students' employment status in the fall of 1983. All of each sampled student's university course work was classified in ten broad subject categories according to the departments by which the courses were offered. Within each category, courses completed were further classified as education-related or non-education-related, depending upon the course titles and catalog descriptions. Data are accompanied by narrative discussion. Numerous tables are provided. (JD)

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STATE OF WASHINGTON

COUNCIL FOR POSTSECONDARY EDUCATION

Analysis of Data on First Teaching Certificate Completers at Five Public Institutions, 1982-83

SP 028 074

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Prepared by:

Barry L. Bull

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The education colleges and the certification, institutional research, placement, and registrar's offices at the five public universities.

The Office of the Superintendent of Public Instruction's certification and Professional Education Sections.

The Washington Pre-College Testing Services.

The Educational Assessment Center at the University of Washington.

MAJOR FINDINGS

Demographic Characteristics:

- About one-third of the students certified through the five public institutions in 1982-83 were at the "traditional" age of college graduation, 21 or 22 years old. The average age of certificate earners was about 26.

- Women constituted about 85 percent of the recipients of elementary certificates and about half of the secondary certificate recipients.

- Minorities constituted only 4.4 percent of all certificate earners, a proportion somewhat smaller than that for minority baccalaureate degree recipients and considerably smaller than that of minority school children.

- The two research universities, University of Washington and Washington State University, trained about a third of the first teaching certificate earners in public universities even though they enrolled over 60 percent of the undergraduates in those universities.

Certification Characteristics:

- Fifty-three percent of the certificate earners at the five public universities received elementary endorsement; 42 percent received secondary endorsement, and 8 percent received K-12 endorsement.

- Physical education and social studies were the most frequent fields of secondary certification.

- There is little evidence of institutional specialization in the preparation of secondary teachers in particular fields.

- Most students, about 75 percent, complete the bachelor's degree and teacher preparation at the same time. Students at the University of Washington are a significant exception to this pattern.

Academic Characteristics:

- Using cumulative college grade point average as a measure of academic ability, teaching certificate earners appear to be somewhat more academically talented on average than their institutions' graduates as a whole.

- Nearly two-thirds of elementary teachers majored in one of four education-related fields -- early childhood, elementary education, reading, and special education. The University of Washington is an exception to this pattern.

- About three-fourths of the teachers of biology, English, history, mathematics, and social studies were endorsed on the basis of a major in the field. The percentages at Eastern Washington University and Washington State University were considerably lower.

- Over 85 percent of certificate earners had grade point averages in their majors above 2.75. Over 27 percent had major grade point averages above 3.50.

- Elementary teachers completed on average 2.6 quarters of college work beyond the minimum required for college graduation. The secondary teachers examined in this report completed on average from 3.4 to 4.7 quarters of work beyond the graduation minimum.

- Some elementary and secondary teachers were able to meet degree and certification requirements within the minimum required for graduation.

- Elementary teachers completed on average over five quarters of education department courses and another quarter of education-related course work taught in other departments.

- The averages for both elementary and secondary teachers suggest that most students complete a reasonably balanced and diverse program of studies. Nevertheless, some students took no course work in English or in mathematics or in history, for example.

- Secondary teachers of biology, English, history, mathematics, and social studies completed on average four or more quarters of course work relevant to their fields of endorsement. Some students at some institutions completed considerably less, in a few cases as little as slightly more than one full-time quarter.

- Secondary teachers completed on average about three quarters of education department courses and almost another quarter of education-related courses in other departments.

Employment:

- Fewer than half of the certificate earners were able to secure employment as regular classroom teachers. Considerably more, perhaps as many as three-fourths, were making a contribution to the state's K-12 educational system through teaching, substituting, or other work in the schools.

- The percentages of students who find teaching positions vary only moderately among the five public universities.

- The proportions of elementary and secondary certificate earners who obtain teaching jobs are about the same.

- These proportions vary considerably by subject for secondary teachers, ranging from two-thirds or more of the special education, mathematics, and music teachers to less than one-fourth of the physical education, health, and art teachers.

- High college grades appear to confer some marginal advantage in the teaching market.

- Some certificate earners who graduate in the bottom fifth of their college class are hired as teachers.

- Three-fourths of those who graduate in the top fifth of their class remain in education in their first year after college, half as teachers, and the remainder as substitutes.

College Admissions Characteristics

- The average high school grade point average of certificate earners in 1982-83 was significantly higher than that for all high school students who took the Washington Pre-College Test (WPCT) in 1978; certificate earners' WPCT verbal and quantitative test scores were somewhat higher on average than those of all test takers.

- The average high school grade point average of certificate earners in 1982-83 was about the same as that of all entering freshmen at Washington public universities in the fall of 1979; certificate earners' WPCT verbal and quantitative test scores were somewhat lower than those of all entering university freshmen.

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ANALYSIS OF DATA ON FIRST TEACHING CERTIFICATE COMPLETERS AT FIVE PUBLIC INSTITUTIONS, 1982-83

In an attempt to gain at least some understanding of the actual results of the state's certification policies and the institutions' programs which have been approved under those policies, the collection of certain basic data on students who have completed those program was undertaken in the late summer through the early fall of 1984. This report is a look at some of those data.

I. The Design of the Study

Data were collected on all students who completed the teacher certification programs at five public universities from the fall term of 1982 through the summer term of 1983 and who subsequently applied for and received the first teaching certificate in Washington. Students at the independent institutions were not included simply because of lack of time and resources. Since the public institutions graduate over 70 percent of the teachers trained in the state, the study does include a significant proportion of the relevant population. Moreover, the study excludes individuals who received the first Washington certificate through reciprocal arrangements with other states because it was designed to focus on Washington's own teacher training institutions. The results of the study, therefore, should be read as descriptive only of the teaching candidates at the public institutions and not of students at all Washington institutions, of all individuals who became eligible to teach in Washington in 1982-83, or of all beginning teachers in the state.

Data on 1,540 students were included in the study. The appendix includes the two forms used to collect data on these students. Basic data, those items included on the first form, were collected on all students. There are four broad categories of data included on this form:

Certification data. Included here are basic demographic information and information on the type of certificate granted and the subjects and levels for which the certificate is endorsed. This information was collected from the Certification Section at the Washington Office of the Superintendent of Public Instruction (OSPI).

Academic data. Included are dates of graduation and program completion, cumulative and major grade point averages, and student majors and minors. This information was collected directly from student records in the universities' certification and registrar's offices.

Admissions test data. Included are the composite verbal and quantitative scores on the Washington Pre-College Test, the test most frequently taken by Washington high school students who plan to enter postsecondary programs. These data are being provided directly by the Washington Pre-College Testing Service and, at this date, are still in the process of being compiled.

Initial employment data. Information on students' employment status in the fall of 1983 was submitted by the institutions' placement offices to the Professional Education Section of OSPI. In some instances, more complete information was collected at the institutions themselves.

In addition to this basic data for all students, a transcript analysis was completed for some of the students using a form similar to the second form included in the appendix. This group of students included a 20 percent random sample of all students endorsed as elementary teachers and 100 percent of the students endorsed as secondary teachers of biology, English, history/government, mathematics, and social studies. All of each sampled student's university course work was classified in ten broad subject categories according to the departments by which the courses are offered. Within each category, courses completed were further classified

as education-related or non-education-related, depending upon the course titles and catalog descriptions. All courses explicitly noted as being for teachers or about education and all courses offered in education departments were classified as education-related. This information was collected directly from students' transcripts obtained in each institution's certification and registrar's offices.

II. Demographic Characteristics

Tables 1, 2, and 3 provide some basic demographic data on the individuals first certified through the five public institutions. Table 1 reports information on the age of certificate earners:

- Only about a third of the students were certified at the "traditional" age of college graduation, 21 or 22 years old. In fact, the percentage of students certified between 23 and 25 years of age is larger than that for students 22 years old and younger.
- Overall, nearly a third of the students certified were over 25 years old; about eight percent were over 35.
- Washington State University's age pattern is significantly different from that at the other institutions, with nearly 91 percent of its certificate earners 25 years old or younger. This finding reflects the fact that on the average, Washington State University enrolls younger students than any other public four-year institution.

Table 1 also reports the total numbers of students trained at each institution:

TABLE 1: AGE AT PROGRAM COMPLETION

	AGE			TOTAL # OF	NUMBER OF STUDENTS IN EACH AGE GROUP						
					0-22	23-25	26-30	31-35	36-40	41-50	51+
	MEAN	LOWEST	HIGHEST	STUDENTS	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL
ALL INSTITUTIONS	26.16	20.07	59.89	1540	33.25	37.14	14.29	7.14	4.42	3.44	0.32
INSTITUTION											
CMU	26.87	20.82	49.33	363	33.06	31.68	14.05	10.19	5.23	5.79	
EMU	27.43	20.90	59.89	324	27.78	37.04	12.65	9.88	6.48	5.56	0.62
UM	26.98	21.11	50.18	248	26.21	36.69	18.15	7.26	8.06	3.63	
NCU	23.49	20.72	37.93	255	56.08	35.69	5.49	1.96	0.78		
WMU	25.61	20.07	54.17	350	26.86	44.29	19.71	5.14	1.71	1.43	0.86

- The research universities, University of Washington and Washington State University, trained only about a third of the first teaching certificate earners even though they enrolled over 60 percent of the undergraduates attending public, four-year institutions in the state.
- The proportion of undergraduate education represented by teacher preparation at each institution can be roughly gauged by comparing the number of certificate earners with the total number of undergraduate degrees granted in 1982-83. Certificate earners as a percentage of all undergraduate degrees equal:

  25 percent at Central Washington University;
  24 percent at Eastern Washington University;
  5 percent at University of Washington;
  9 percent at Washington State University;
  23 percent at Western Washington University; and,
  12 percent at all institutions combined.

Table 2 reports the sex of certificate earners:

- Overall, 70 percent of certificate earners were women, ranging from 64 percent at Eastern to 74 percent at Washington State University.
- Eighty-five percent of elementary certificate earners were women. According to data provided by OSPI's Office of Educational Equity, 74 percent of all public elementary teachers in 1983-84 were women.
- Secondary certificate recipients overall were about half women. At two institutions, University of Washington (55 percent) and Washington State University (60 percent), over half of the secondary endorsement earners were women. By contrast, only 38 percent of the public secondary school teachers were women in 1983-84.

Table 2a. reports the numbers of secondary subject endorsements by sex:

TABLE 2: NUMBER OF STUDENTS BY SEX AND ENDORSEMENT LEVEL

		ALL SCHOOLS		INSTITUTION									
				CWU		EWU		UW		WSU		WWU	
		SEX		SEX				SEX				SEX	
		M	F	M	F	M	F	M	F	M	F	M	F
ALL STUDENTS	COUNT	479	1061	107	256	118	206	68	180	67	188	119	231
ELEMENTARY ENDORSEMENTS	COUNT	124	703	27	185	33	137	19	120	18	117	27	144
SECONDARY ENDORSEMENTS	COUNT	331	322	70	54	85	69	44	54	47	70	85	75
K-12 ENDORSEMENTS	COUNT	33	94	16	63	1	3	6	9	2	7	8	12

TABLE 2a. SECONDARY CERTIFICATE ENDORSEMENTS BY SEX

	ALL INSTITUTIONS		INSTITUTION									
			CWU		EWU		UW		WSU		WWU	
	SEX		SEX		SEX		SEX		SEX		SEX	
	F	M	F	M	F	M	F	M	F	M	F	M
	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT	COUNT
FIELD OF ENDORSEMENT												
AGRICULTURE	7	10			1				6	10		
ART	17	7	1		8	3	2		2		4	4
BEHAVIORIAL SCIENCES	3	4					3	4				
BILINGUAL EDUCATION	2						2					
BIOLOGICAL SCIENCE	5	14			2	7	2	4			1	3
BUSINESS AND OFFICE EDUC	28	13	4	4	9	5	4	2	2	2	9	
CHEMISTRY	1	3					1	3				
DISTRIBUTIVE EDUCATION	2	4	1	2	1	2						
EARTH SCIENCE		4				2		2				
ECONOMICS EDUCATION		4						3				1
ENGLISH / LANGUAGE ARTS	51	37	6	3	10	10	10	7	12	4	13	13
ENGLISH AS A 2ND LANG	1						1					
FOREIGN LANGUAGES	16	3	7		2	1	1	1	3		3	1
FRENCH	3	1					2	1			1	
GERMAN	6	1					4	1			2	
HEALTH EDUCATION	25	14	2	3	8	5			14	3	1	3
HISTORY / GOVERNMENT	10	18					7	8			3	10
HOME ECONOMICS	37	1	5		12				9		11	1
INDUSTRIAL ARTS	4	39		10	1	14				1	3	14
JOURNALISM		1						1				
LEARNING RESOURCES	1	1	1									1
MATHEMATICS	21	21	4	2	6	4	3	8	5	4	3	3
MUSIC	8	15			1	8	3				4	7
NATURAL AND GENERAL SCIENCE	22	37	5	8	3	12	1	2	12	10	1	5
PHILOSOPHY		1						1				
PHYSICAL EDUCATION	89	104	15	30	26	28	11	6	27	23	10	17
PHYSICS		5						3				2
READING	1				1							
SOCIAL STUDIES & SOCIAL SCIENCES	47	75	3	9	13	24	9	12	16	17	6	13
SPANISH	5	1					1				4	1
SPECIAL EDUCATION	4	4	2	1							2	3
SPEECH AND DRAMA	7	1					7	1				
TRAFFIC SAFETY	3	15	1	7	2	8						

- There is evidence of sex predominance in several of the largest fields, a predominance which accords with common stereotypes of gender preference for subject matter. Fields in which two-thirds of the endorsements were earned by women include:

  Home economics (97%)
  Foreign languages (83%)
  Art (71%)
  Business and office education (68%)

  Fields in which two-thirds or more of the endorsements were earned by men include:

  Industrial arts (91%)
  Traffic safety (83%)
  Natural sciences (68%)

- Nevertheless, all of the largest fields included teachers of both sexes and several were reasonably balanced:

  Mathematics (50% women)
  Physical education (46% women)
  English (58% women)
  Social sciences (37% women)

Table 3 reports on the ethnicity of certificate earners. In an attempt to get as complete a picture of ethnicity as possible, several sources of information were used -- employers reports of ethnicity to OSPI, student reports of ethnicity to OSPI on the employment status survey, and institutions' own records of student ethnicity. No one was counted into an ethnic category unless one or more of the these sources definitely confirmed that categorization. As a result, the ethnicity of 282 individuals, about 18 percent of the certificate earners, is classified as unknown. According to officials at the universities, it is probably reasonably safe to classify their unknowns as white. Because such small numbers of minority students are reported and such a comparatively large

TABLE 3: NUMBER OF STUDENTS BY ETHNIC GROUP AND ENDORSEMENT LEVEL

		ALL STUDENTS	ELEMENTARY ENDORSEMENTS	SECONDARY ENDORSEMENTS	K-12 ENDORSEMENTS
		COUNT	COUNT	COUNT	COUNT
ALL SCHOOLS		1540	827	653	127
	ETHNICITY				
ALL SCHOOLS	AM INDIAN	10	5	5	0
	ASIAN	25	10	6	2
	BLACK	11	5	6	2
	HISPANIC	16	11	5	0
	OTHER	6	3	2	1
	UNKNOWN	282	161	114	30
	WHITE	1190	634	515	92
INSTITUTION	ETHNICITY				
CWU	AM INDIAN	2	1	1	0
	ASIAN	4	3	0	2
	BLACK	5	3	2	2
	HISPANIC	6	5	1	0
	OTHER	1	0	0	1
	UNKNOWN	93	58	31	20
	WHITE	247	142	89	84
EWU	AM INDIAN	6	4	2	0
	ASIAN	2	2	0	0
	BLACK	3	0	3	0
	HISPANIC	2	2	0	0
	OTHER				
	UNKNOWN	5	3	2	0
	WHITE	306	169	147	4
UW	AM INDIAN				
	ASIAN	12	8	4	0
	BLACK	2	1	1	0
	HISPANIC	5	3	2	0
	OTHER				
	UNKNOWN	78	42	33	3
	WHITE	161	85	58	12
WSU	AM INDIAN	1	0	1	0
	ASIAN	1	0	1	0
	BLACK				
	HISPANIC				
	OTHER				
	UNKNOWN	88	42	43	5
	WHITE	166	93	72	4
WWU	AM INDIAN	1	0	1	0
	ASIAN	6	5	1	0
	BLACK	1	1	0	0
	HISPANIC	3	1	2	0
	OTHER	5	3	2	0
	UNKNOWN	13	6	5	2
	WHITE	321	155	149	18

number have not reported their ethnicity in any of the three sources of ethnic information, however, the results should be treated as indicative of but not absolutely conclusive about minority representation.

- Assuming all unknowns are white, only 4.4 percent of the certificate earners were known to be minorities. If all unknowns are excluded, still only 5.4 percent are minorities.
- A slightly higher proportion of elementary teachers (5.1 percent) were minorities than secondary (3.6 percent) and K-12 (3.9 percent) teachers.

Table 4 puts the ethnicity of certificate earners in context by comparing it to the ethnicity of several other groups of Washingtonians:

- Minorities are underrepresented among certificate earners when compared with baccalaureate degree recipients, undergraduate enrollments, school children, current public school teachers, and all state residents.
- The contrast is greatest with school children, the group that these teachers will serve. According to the National Center for Education Statistics, the proportion of minority children in Washington public schools has recently increased dramatically, doubling between 1970 and 1980 from 7 percent to 14 percent (Source: The Condition of Education, 1984).
- Every minority group is underrepresented among certificate earners on all comparisons with the exception of Hispanics when compared to baccalaureate degree recipients and current teachers.
- Overall, Blacks and Asians appear to be the most consistently underrepresented although Hispanics are more underrepresented than Asians when compared with school children and all state residents.

Table 4

ETHNIC GROUP COMPARISONS

	Asian	Black	Hispanic	Indian	Other	White
Certificate earners, WA public universities, 1982-83	1.6%	.7%	1.0%	.6%	.4%	95.6%[a]
Bachelor's degree earners, WA public universities, 1982-83[b]	4.9%	2.1%	1.0%	.8%	NR[g]	91.4%
Undergraduate enrollments, WA 4-year Public, fall 1982[c]	5.9%	2.4%	1.2%	1.0%	NR	89.5%
K-12 school enrollment, WA public and private, fall 1983[d]	4.4%	3.6%	3.6%	2.3%	NR	86.1%
Classroom teachers by FTE's, WA public schools, October 1983[e]	1.9%	1.9%	1.0%	.7	NR	94.6%
All Washington residents, estimates, 1983[f]	3.1%	2.7%	3.0%	1.5%	.5%	89.3%

[a]Includes those known to be white and those whose ethnicity is unknown.
[b]Source: HEGIS Survey, Degrees and Other Formal Awards Conferred.
[c]Source: HEGIS Survey, Fall Enrollment and Compliance Report for Institutions of Higher Education.
[d]Source: Minority Enrollments in Public and Private Schools, Office of the Superintendent of Public Instruction, October 1983.
[e]Source: Selected Statistics Related to School Desegregation on the Basis of Race and Sex, Office of the Superintendent of Public Instruction, November 1984.
[f]Source: Washington State Office of Financial Management, Special Report No. 72.
[g]Data not reported in this category.

Table 5 compares minority certificate earners to minority baccalaureate degree recipients at each of the five institutions.

Table 5

PERCENTAGE OF MINORITY CERTIFICATE EARNERS AND BACCALAUREATE DEGREE RECIPIENTS AT FIVE PUBLIC UNIVERSITIES, 1982-83

Institution	Certificate Earners	Baccalaureate Recipients
CWU	4.9%	3.5%
EWU	4.0%	11.6%
UW	7.7%	12.7%
WSU	.8%	5.2%
WWU	4.6%	4.6%

- The underrepresentation of minorities when compared to baccalaureate recipients appears to occur at the two research universities and Eastern, the institutions with the highest proportions of minorities among their graduates. The minority underrepresentation at Eastern and the University of Washington occurs primarily among Asians and Blacks; at Washington State University it occurs among all ethnic groups.

III. Certification Characteristics

Type of certificate granted. The first teaching certificate granted under the 1978 standards is called an initial certificate; that granted under the 1961 standards is called a provisional certificate. Table 6 reports the percentages of each type of certificate granted at the five institutions in 1982-83. Institutions do not admit students to programs until they are approved. Moreover, students admitted to previously approved programs must meet the standards of those old programs and will be

granted the type of certification appropriate to those programs. Because approval under the 1978 standards was not granted to Eastern and Central until 1982 and to Washington State until 1983, and because students are normally admitted to programs before their senior year, students at these institutions did not complete the new programs. At the University of

Table 6

TYPE OF FIRST TEACHING CERTIFICATE GRANTED, 1982-83

Institution (Date of 1978 Standards Approval)	Percentage of Students by Certificate Type: Initial, 1978 Standards	Provisional, 1961 Standards
All Institutions	25%	75%
Central Washington University (1982)	0%	100%
Eastern Washington University (1982)	1%	99%
University of Washington (1981)	88%	12%
Washington State University (1983)	0%	100%
Western Washington University (1981)	45%	55%

Washington and Western, some students entered teacher preparation before the new programs took effect. This implies that:

- Many of the students included in this survey did not meet the new and often higher requirements that were the result of the 1978 standards.
- In particular, the higher admission test score requirements at Central and Washington State University and the higher gpa requirement at Washington State University and Eastern did not take effect until 1984-85. Higher gpa requirements at Western and Central will take effect in 1985-86. And the gpa required at the University of Washington has increased as the all-undergraduate gpa has improved.

Level of certificates. Table 2 also allows us to make some general observations about the levels of endorsement for these certificate earners:

- Overall, 53 percent received elementary endorsement; 42 percent received secondary endorsement, and eight percent received K-12 endorsement. According to OSPI, in 1983-84, 46 percent of public school teachers were employed in elementary schools, 44 percent in secondary schools, and 10 percent in other positions.
- Major departures from this overall pattern occurred at Central Washington University where nearly twice as many students earned elementary endorsements as earned secondary endorsements, and Western Washington University, where almost equal numbers of students earned elementary and secondary endorsements.
- Sixty-seven individuals were endorsed at more than one level. Nearly all of these dual-level endorsements were for both elementary and K-12. Fifty-two of these individuals were prepared at Central Washington University.

Fields of endorsement. Tables 7 and 8 report the fields of endorsement of secondary and K-12 teachers. Of the 827 elementary certificate earners, 821 were endorsed as general elementary classroom teachers. The certificates of these general elementary teachers are often endorsed in particular subjects to reflect the required area of academic emphasis. Because some institutions do not recommend elementary teachers for these supporting endorsements and because more detailed information on these students' majors and other course work will be analyzed subsequently, these supporting endorsements have not been tabulated. Of the six individuals certified at the elementary level without a general classroom endorsement, five were endorsed in music (four from the University of Washington and one from Western) and one in physical education (from Western).

Table 7

SUBJECT ENDORSEMENTS OF SECONDARY SCHOOL CERTIFICATE EARNERS IN FIVE PUBLIC INSTITUTIONS, 1982-83

	Percent of Secondary Certificate Earners					
	All Institutions	CWU	EWU	UW	WSU	WWU
Education-Related Fields	2.1%	3.2%	.6%	3.1%	--	3.8%
Bilingual Education[a]	.3%	--	--	2.0%	--	--
English Second Language[b]	.2%	--	--	1.0%	--	--
Learning Resources[a]	.3%	.8%	--	--	--	.6%
Reading[a]	.2%	--	.6%	--	--	--
Special Education[a]	1.2%	2.4%	--	--	--	3.1%
English/Language Arts[a]	14.3%	8.1%	14.9%	18.4%	13.7%	16.9%
Foreign Languages	5.2%	5.6%	1.9%	10.2%	2.6%	6.9%
Foreign Language[c]	2.7%	5.6%	1.9%	2.0%	2.6%	1.9%
French[b]	.6%	--	--	3.1%	--	.6%
German[b]	.9%	--	--	4.1%	--	1.3%
Spanish[b]	.9%	--	--	1.0%	--	3.1%
Humanities and Arts	7.3%	.8%	12.9%	6.1%	1.7%	11.9%
Art[a]	3.3%	.8%	5.8%	2.0%	1.7%	5.0%
Music[a]	3.8%	--	7.1%	3.1%	--	6.9%
Philosophy[b]	.2%	--	--	1.0%	--	--
Mathematics[a]	6.0%	4.0%	5.2%	11.2%	7.7%	3.8%
Natural Sciences[d]	13.2%	10.5%	16.2%	15.3%	17.9%	6.3%
Natural[e]/General[b] Science	10.4%	10.5%	15.6%	3.1%	17.9%	4.3%
Biology[b]	1.7%	--	.6%	6.1%	--	2.5%
Chemistry[b]	.6%	--	--	4.1%	--	--
Earth Science[b]	.3%	--	--	2.0%	--	--
Physics[b]	.8%	--	--	3.1%	--	1.3%

Table 7
(Continued)

SUBJECT ENDORSEMENTS OF SECONDARY SCHOOL CERTIFICATE EARNERS IN FIVE PUBLIC INSTITUTIONS, 1982-83

	Percent of Secondary Certificate Earners					
	All Institutions	CWU	EWU	UW	WSU	WWU
Social Sciences[d]	21.3%	9.7%	24.0%	27.6%	28.2%	18.8%
Soc. Studies[b]/Soc. Sci.[c]	18.6%	9.7%	24.0%	21.4%	28.2%	11.9%
Behavioral Studies[b]	1.2%	--	--	8.2%	--	--
Economics/Geography[b]	.6%	--	--	3.1%	--	.6%
History/Government[b]	4.3%	--	--	15.3%	--	8.1%
Speech/Drama/Communications[e]	1.2%	--	--	8.2%	--	--
Journalism[b]	.2%	--	--	1.0%	--	--
Speech/Drama[b]	1.1%	--	--	7.1%	--	--
Other Fields[d]	55.1%	59.7%	68.2%	23.5%	77.8%	41.9%
Agriculture[a]	2.5%	--	--	--	13.7%	--
Business Ed.[a]	6.3%	6.5%	9.1%	6.1%	3.4%	5.6%
Distributive Ed.[a]	.9%	2.4%	1.9%	--	--	--
Health Ed.[a]	5.9%	4.0%	8.4%	--	14.5%	2.5%
Home Economics[a]	5.8%	4.0%	8.4%	--	7.7%	6.9%
Industrial Arts[a]	6.5%	8.1%	9.1%	--	.8%	11.3%
Physical Education[a]	29.2%	36.3%	33.8%	17.3%	42.7%	16.9%
Traffic Safety[a]	2.7%	6.5%	6.4%	--	--	--
Total Number of Endorsements	880	136	236	143	181	184
Total Number of Certificate Earners	653	124	154	98	117	160
Double Endorsement Earners	213(189)[f]	12	76	39(22)[f]	62	24(17)[f]
Triple Endorsement Earners	7(4)[f]	0	3	3(0)[f]	1	0

[a]Endorsement on both the Provisional (1961 Standards) and Initial (1978 Standards) Certificates.
[b]Endorsement on Initial Certificates only.
[c]Endorsement on Provisional Certificates only.
[d]Individuals with more than one endorsement in this category have been counted only once in the percentage for the entire category.
[e]Subjects in this category were endorsed under English/Language Arts on the Provisional Certificate.
[f]Parenthetical figures represent multiple endorsements excluding those within the social and natural sciences on the initial certificate.

Table 8

FIELDS OF ENDORSEMENT OF K-12 TEACHERS IN
FIVE PUBLIC INSTITUTIONS, 1982-83

	Number of Students					
Field	All Institutions	CWU	EWU	UW	WSU	WWU
Art	12	3	--	7	--	2
Foreign Language	1	--	--	1	--	--
Music	30	17	--	3	6	4
Physical Education	18	--	1	--	3	14
Social Studies	1	--	--	1	--	--
Special Education	71	60	4	7	--	--

Observations on the endorsements of secondary teachers include:

- Physical education (29.2 percent) and social studies (18.6 percent) were the most frequent endorsements. Physical education is especially predominant at Central, Eastern, and Washington State.
- Very few secondary teachers are endorsed in education-related fields.
- All institutions certify reasonably large numbers of students in almost all fields. There is little evidence of any specialization in particular academic subjects to the exclusion of others.
- All institutions except the University of Washington prepare a substantial number of teachers in the applied and vocational fields.
- About one-third of certificate earners are endorsed in more than one field. Over half the teachers from Eastern and Washington State have multiple endorsements while fewer than 10 percent at Central do, however.

Table 8 reports the fields of endorsement for K-12 teachers:

- All institutions prepare K-12 specialists, but not all of them do so in the same fields.
- Some institutions prepare teachers as K-12 specialists rather than as secondary teachers in particular fields. Central prepares K-12 but no 7-12 music teachers. Similarly, the University of Washington prepares K-12 but no 7-12 special education teachers.

Time between the bachelor's degree and the teaching certificate.

Table 9 reports the length of the interval between the time that a student receives the first bachelor's degree and that at which he or she completes the teacher certification program.

Table 9 TIME BETWEEN BACHELOR'S DEGREE & CERTIFICATION PROGRAM COMPLETION

		ALL SCHOOLS	INSTITUTION				
			CMU	EMU	UM	WSU	WMU
TIME INTERVAL (YEARS)	MEAN	0.948	0.781	1.133	1.652	0.314	0.913
TIME INTERVAL (YEARS)	LOWEST	0.000	0.000	0.000	0.000	0.000	0.000
TIME INTERVAL (YEARS)	HIGHEST	37.083	27.000	37.083	22.250	15.333	21.750
TOTAL NO. OF STUDENTS	COUNT	1540	363	324	248	255	350
DISTRIBUTION OF STUDENTS							
NO TIME INTERVAL	% OF TOTAL	74.740	90.083	86.420	21.774	80.392	81.429
1 TO 3 MONTHS	% OF TOTAL	3.247		0.309	18.145	1.176	0.286
4 TO 6 MONTHS	% OF TOTAL	4.416	0.551	0.309	17.339	7.843	0.571
7 TO 9 MONTHS	% OF TOTAL	2.338		0.309	8.871	3.922	0.857
10 TO 12 MONTHS	% OF TOTAL	1.883	0.275	0.309	8.468	1.176	0.857
1 TO 2 YEARS	% OF TOTAL	2.403	1.377	0.926	4.435	2.353	3.429
2 TO 3 YEARS	% OF TOTAL	2.208	0.826	2.160	4.435		3.714
3 TO 5 YEARS	% OF TOTAL	2.987	1.377	3.086	6.452	1.569	3.143
5 TO 10 YEARS	% OF TOTAL	3.052	3.030	1.543	6.855	1.176	3.143
OVER 10 YEARS	% OF TOTAL	2.727	2.479	4.630	3.226	0.392	2.571

- The pattern at all institutions except the University of Washington is similar.
  - -- A large majority of students at these four institutions, about 85 percent on average, complete the first bachelor's degree and the teaching certificate simultaneously.
  - -- About 11 percent of the certificate earners in these four universities complete the teacher preparation programs a year or more after receiving the bachelor's degree.
  - -- All four institutions operate reasonably active post-baccalaureate certification programs but the pattern of the program at Washington State University differs from that at the regional universities. At Washington State nearly all the post-baccalaureate certificate earners complete their programs within the first year; at the regionals most post-baccalaureate students finish after the first year with about half of these students (5.8 percent of the total) becoming certified five or more years after the degree.
- The markedly different pattern at the University of Washington -- only a fifth finish the degree and the certificate simultaneously; only three-fourths finish by the end of the first post-baccalaureate year, and over 10 percent finish five or more years after the degree -- can be accounted for by two features of the University's programs:
  - -- The degree requirements allow <u>all</u> students to take the degree before completing the teacher preparation program. In fact, the College of Education actively encourages students to complete degree requirements before undertaking student teaching. That such a large proportion are able to do so suggests that, while it

is theoretically possible to complete degree and certificate requirements within the 180 quarter hour minimum degree requirement, few students are able to do so in practice. One of the results of the three- and four-quarter long field programs at the University, then, is that they effectively increase the amount of college work needed to become certified well beyond the 180 quarter hour minimum for graduation.

-- The University operates a specially designed and explicitly publicized post-baccalaureate certification program.

- Data reported later in this document on the total amount of college work taken before certification indicate that certification requirements at the other four institutions also have the effect of increasing the college credit requirements beyond graduation minimums.

IV. Students' Academic Characteristics

Cumulative grade point averages of certificate earners. Table 10 reports the college grade point averages of certificate earners and compares them to graduates from that same institution during 1982-83. Tables A-1, A-2, and A-3 in the appendix report this information for elementary, secondary, and K-12 certificate earners. Several observations about the meaning of these data are necessary.

1. The cumulative gpa collected for students who completed the degree and the certificate simultaneously is that upon which the graduation decision at that institution is based. At Eastern, it is the gpa of all undergraduate work. At the other four institutions, it is the gpa of all work at that institution only. This was done because the comparison data for other graduates were calculated in that same way.

Table 10 CUMULATIVE GPA COMPARISONS

		INSTITUTION				
		CNU	EWU	UW	WSU	WWU
ALL GRADUATES	AVERAGE GPA	2.960	3.080	3.050	2.870	3.000
CERTIFICATE EARNERS	AVERAGE GPA	3.104	3.100	3.231	3.063	3.109
	LOW GPA	2.100	2.040	2.220	2.080	2.360
	HIGH GPA	3.970	3.940	3.910	3.980	3.980
BREAKDOWN BY THE ALL-GRAD AVERAGE GPA						
# ABOVE ALL-GRAD AVG	% OF ALL C-EARNERS	60.882	53.086	71.371	67.059	60.571
# BELOW ALL-GRAD AVG	% OF ALL C-EARNERS	39.118	46.914	28.629	32.941	39.429
QUINTILE BREAKDOWN						
# IN BOTTOM QUINT	% OF ALL C-EARNERS	9.366	17.593	10.484	9.020	9.714
# IN SECOND QUINT	% OF ALL C-EARNERS	17.355	20.062	18.145	14.902	17.143
# IN THIRD QUINT	% OF ALL C-EARNERS	20.661	16.975	19.355	19.216	26.206
# IN FOURTH QUINT	% OF ALL C-EARNERS	23.691	21.296	21.774	27.059	25.429
# IN TOP QUINT	% OF ALL C-EARNERS	28.926	24.074	30.242	29.804	21.429

2. The cumulative gpa collected for post-baccalaureate certificate earners includes all work completed at the baccalaureate-degree-granting institution and all work completed since graduation. Since the gpa for the simultaneous completers includes both education and non-education course work, it was deemed appropriate to include both types for post-baccalaureate students as well.

3. Because the data available on graduates were somewhat different at each institution, the comparison groups vary from institution to institution:

   -- At Central, the average and distribution comparisons are to all students who graduated in winter, spring, and summer quarters of 1983.

   -- At Eastern, the average and distribution comparisons are to all students who graduated in fall quarter of 1982 and winter, spring, and summer quarters of 1983.

   -- At the University of Washington, the comparison average gpa is that for all undergraduates. The distribution comparison is to all seniors in the spring quarter of 1983.

   -- At Washington State University, the average and distribution comparisons are to all seniors in the spring semester of 1983.

   -- At Western, the comparison average gpa reported is the median, that is, the gpa at the 50th percentile, of all seniors in the spring quarter of 1983. The distribution comparison is to the same group of seniors.

4. The bottom half of Table 8 reports the percentage of certificate earners with cumulative gpa's that would have placed them in each fifth of the comparison class. Thus, for example, about 9.4 percent of

Central's certificate earners had gpa's lower than four-fifths of the Central graduates in winter, spring, and summer quarters of 1983. About 28.9 percent had gpa's above the gpa's of four-fifths of this same group of graduates.

5. Because grading practices, graduation requirements, and students vary among institutions it is not meaningful to calculate a single average cumulative gpa for all graduates or all certificate earners at all five institutions. Nor is it meaningful to compare gpa's at one institution to those at another. But it is possible to summarize for all five institutions combined the percentages of students who fall into the various class rankings at their own institutions:

Table 11

CUMULATIVE GPA COMPARISONS FOR CERTIFICATE EARNERS AT ALL FIVE PUBLIC INSTITUTIONS, 1982-83

	Percent of Students by Type of Endorsement			
	Elem.	Sec.	K-12	All
At or above all-grad average	66%	57%	69%	62%
Below all-grad average	34%	43%	31%	38%
In bottom fifth of all grads	9%	14%	5%	11%
In second fifth of all grads	16%	20%	14%	18%
In third fifth of all grads	20%	21%	27%	21%
In fourth fifth of all grads	25%	22%	22%	24%
In top fifth of all grads	30%	23%	32%	27%

Observations:

- On this one measure of academic ability, teacher certification programs appear to attract a somewhat more academically talented group of students than is available in each institution as a whole.

- The proportion of certificate earners with gpa's high enough to place them in the top fifth of their institution's graduating classes during the year exceed 20 percent at every university.
- Every institution certified some students with gpa's low enough to place them in the bottom fifth of their institution's graduating classes. At only one university, however, did the proportion of the students in the bottom fifth of the class exceed 11 percent, Eastern with 17.6 percent.
- The systematic differences between Eastern and the four other institutions may be partly the result of differences in the definition of cumulative gpa. Eastern's gpa includes all college work; that at the other four institutions includes only that work completed at the recommending institution.
- Overall, elementary certificate earners had somewhat higher gpa's than secondary certificate earners. This is the case at each of the five institutions, but the difference between these two groups of students is smallest at the University of Washington.
- Central was most successful in attracting high gpa students into elementary teaching.
- Washington State and the University of Washington were most successful in attracting high gpa students into secondary teaching.

Major fields of study. Tables 12, 13, and 14 indicate the majors of students with elementary, secondary, and K-12 endorsements. The majors reported in these tables are the undergraduate majors recorded on student's transcripts and in the students's records maintained in the institutions' certification offices. The few students with master's degrees were also

TABLE 12: MAJORS OF STUDENTS ENDORSED AS GENERAL ELEMENTARY CLASSROOM TEACHERS

	INSTITUTION					
	ALL INSTITUTIONS	CWU	EWU	UW	WSU	[illegible]U
	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS
TOTAL NUMBER OF STUDENTS	821	212	170	135	135	169
ALL EDUCATION-RELATED FIELDS	67.235079	92.452830	69.411765	8.148148	77.037037	72.781065
--BILINGUAL EDUCATION AND ESL	2.192448	2.358491	1.176471	8.148148	0.000000	0.000000
--EARLY CHILDHOOD & CHILD DEVEL	13.032887	19.339623	10.588235	0.000000	27.407407	6.508876
--ELEMENTARY EDUCATION	20.828258	46.226415	0.588235	0.000000	0.000000	42.603550
--LEARNING RESOURCES	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
--READING	12.302071	0.000000	40.588235	0.000000	23.703704	0.000000
--SPECIAL EDUCATION	19.123021	25.471698	15.882353	0.000000	26.666667	23.668639
ENGLISH & LANGUAGE ARTS	4.993910	0.943396	4.705882	14.814815	4.444444	2.958580
FOREIGN LANGUAGES	1.583435	0.943396	0.588235	5.925926	1.481481	0.000000
HEALTH EDUCATION	0.121803	0.000000	0.588235	0.000000	0.000000	0.000000
ALL OTHER HUMANITIES	3.775883	1.886792	1.764706	8.148148	4.444444	4.142012
--ART	2.557856	0.943396	1.176471	6.666667	2.962963	2.366864
--MUSIC	0.852619	0.471698	0.588235	0.740741	1.481481	1.183432
--OTHERS	0.365408	0.471698	0.000000	0.740741	0.000000	0.591716
MATH AND COMPUTER SCIENCE	1.705238	0.000000	5.882353	1.481481	0.740741	0.591716
NATURAL SCIENCES	1.948843	0.471698	2.941176	3.703704	1.481481	1.775148
PHYSICAL EDUCATION	2.192448	0.471698	4.117647	0.000000	4.444444	2.366864
SOCIAL AND BEHAVIORAL SCIENCES	13.154689	6.603774	4.117647	42.962963	8.888889	10.059172
SPEECH, DRAMA & COMMUNICATIONS	3.045067	0.000000	5.882353	9.629630	0.000000	1.183432
OTHER FIELDS	3.166870	0.471698	1.764706	9.629630	0.000000	5.325444

TABLE 13: MAJORS OF STUDENTS CERTIFIED TO TEACH AT THE SECONDARY LEVEL

	INSTITUTION					
	ALL INSTITUTIONS	CWU	EWU	UW	WSU	WWU
	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS
TOTAL NUMBER OF STUDENTS	653	124	154	98	117	160
ALL EDUCATION-RELATED FIELDS	1.071975	3.225806	1.298701	1.020408	0.000000	0.000000
--BILINGUAL EDUCATION AND ESL	0.306279	0.806452	0.000000	1.020408	0.000000	0.000000
--EARLY CHILDHOOD & CHILD DEVEL	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
--ELEMENTARY EDUCATION	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
--LEARNING RESOURCES	0.153139	0.000000	0.649351	0.000000	0.000000	0.000000
--READING	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
--SPECIAL EDUCATION	0.459418	2.419355	0.000000	0.000000	0.000000	0.000000
ENGLISH & LANGUAGE ARTS	10.413476	5.645161	8.441558	15.306122	5.982906	16.250000
FOREIGN LANGUAGES	4.900459	5.645161	0.649351	11.224490	1.709402	6.875000
HEALTH EDUCATION	1.531394	4.838710	1.298701	0.000000	0.000000	1.250000
ALL OTHER HUMANITIES	7.044410	1.612903	10.389610	5.102041	1.709402	13.125000
--ART	2.603369	0.806452	4.545455	1.020408	0.854701	4.375000
--MUSIC	3.522205	0.000000	5.194805	3.061224	0.854701	6.875000
--OTHERS	0.918836	0.806452	0.649351	1.020408	0.000000	1.875000
MATH AND COMPUTER SCIENCE	4.747320	4.838710	4.545455	6.122449	5.128205	3.750000
NATURAL SCIENCES	9.341501	11.290323	6.493506	14.285714	12.820513	5.000000
PHYSICAL EDUCATION	27.565084	36.290323	31.818182	15.306122	36.752137	17.500000
SOCIAL AND BEHAVIORAL SCIENCES	14.701378	10.483871	11.688312	22.448980	13.675214	16.875000
SPEECH, DRAMA & COMMUNICATIONS	2.909648	2.419355	3.246753	10.204002	0.854701	0.000000
OTHER FIELDS	21.133231	20.967742	25.974026	6.122449	23.931624	23.750000

TABLE 14: MAJORS OF STUDENTS WITH K-12 ENDORSEMENTS

	INSTITUTION					
	ALL INSTITUTIONS	CWU	EWU	UW	WSU	WWU
	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS	% OF STUDENTS
TOTAL NUMBER OF STUDENTS	127	79	4	15	9	20
ALL EDUCATION-RELATED FIELDS	50.393701	75.949367	100.000000	0.000000	0.000000	0.000000
--BILINGUAL EDUCATION AND ESL	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
--EARLY CHILDHOOD & CHILD DEVEL	1.574803	2.531646	0.000000	0.000000	0.000000	0.000000
--ELEMENTARY EDUCATION	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
--LEARNING RESOURCES	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
--READING	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
--SPECIAL EDUCATION	50.393701	75.949367	100.000000	0.000000	0.000000	0.000000
ENGLISH & LANGUAGE ARTS	0.787402	0.000000	0.000000	6.666667	0.000000	0.000000
FOREIGN LANGUAGES	0.787402	0.000000	0.000000	6.666667	0.000000	0.000000
HEALTH EDUCATION	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ALL OTHER HUMANITIES	32.283465	24.050633	0.000000	66.666667	66.666667	30.000000
--ART	9.448819	3.797468	0.000000	46.666667	0.000000	10.000000
--MUSIC	22.834646	20.253165	0.000000	20.000000	66.666667	20.000000
--OTHERS	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
MATH AND COMPUTER SCIENCE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NATURAL SCIENCES	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
PHYSICAL EDUCATION	14.173228	1.265823	0.000000	0.000000	33.333333	70.000000
SOCIAL AND BEHAVIORAL SCIENCES	4.724409	2.531646	0.000000	20.000000	0.000000	5.000000
SPEECH, DRAMA & COMMUNICATIONS	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
OTHER FIELDS	0.787402	0.000000	0.000000	6.666667	0.000000	0.000000

considered to have a major in the field of the degree. Because a small number of students had majors in two fields, the percentages in each column exceed 100 percent. The category "Other Fields" in these tables includes agriculture, business, distributive education, home economics, industrial arts, and speech and hearing science.

Observations about the majors of <u>elementary</u> teachers include:

- A preponderance of students at all institutions except the University of Washington major in one of four fields -- early childhood, elementary education, reading, or special education.
- As a result, at these four institutions there is relatively little diversity in the academic backgrounds of certificate earners.
- In addition, all four of the most popular fields are oriented toward pedagogy. As a result, relatively few of the elementary certificate earners at these four institutions have studied in depth an academic subject that they will teach to elementary school students.
- The University of Washington has to a great extent prevented the concentration of majors and has encouraged students to major in academic subjects by limiting permissable education-related undergraduate majors for elementary certification to only two fields -- bilingual education and English as a second language.

The majors of <u>secondary</u> and <u>K-12</u> teachers follow the patterns of endorsements at these levels since endorsements are subject specific:

- Physical education is by far the most frequently secondary teaching major, with more than one-fourth of the students majoring in it. Only at the University of Washington did the percentage of students majoring in another field, the social and behavioral sciences, exceed that of physical education majors.

- Only seven secondary teachers majored in an education-related field. Four of these students also had another major in a non-education-related field.

At the secondary level, the relationship between the field of endorsement and students' academic background is of particular interest. Table 15 reports the academic bases for endorsement in five secondary subjects. Excluded from this table are a few individuals for whom reasonably complete transcripts were not available at the time that the data were collected since in those cases it was often difficult to establish with certainty the majors completed.

- Nearly three-fourths of the endorsements granted in these fields were based on the completion of a relevant major.
- In all but three cases, the endorsement was based on the completion of a relevant major or minor. Those three cases, moreover, may be the result of errors in data collection or in the recording of majors or minors on transcripts.
- The patterns vary somewhat among subjects and considerably among institutions. Only about half of the endorsements at Eastern and Washington State were based on relevant majors. About one-fourth of the biology endorsements at Eastern and less than one-half of the social studies endorsements at both Eastern and Washington State were based on a relevant major.

Grade point average in the major. Table 16 reports the average and the distribution of students' grade point averages in their majors. At two institutions, this average was already calculated and recorded for each student. At the other three, the average was calculated for the courses

Table 15

ACADEMIC BASES FOR SECONDARY SCHOOL SUBJECT ENDORSEMENT IN FIVE FIELDS

Institution		Percentage of Endorsed Certificate Earners					
		Biology	English/ Lang. Arts	History/ Govt.	Mathematics	Social Studies	All Five Subjects
Central	-- Relevant major	100%	88%	--	100%	100%	97%
	Relevant minor	0%	13%	--	0%	0%	3%
	No major or minor	0%	0%	--	0%	0%	0%
Eastern	-- Relevant major	26%	75%	--	70%	46%	51%
	Relevant minor	74%	25%	--	30%	49%	47%
	No major or minor	0%	0%	--	0%	5%	2%
U. of Washington	-- Relevant major	100%	88%	87%	55%	95%	86%
	Relevant minor	0%	12%	13%	45%	5%	14%
	No major or minor	0%	0%	0%	0%	0%	0%
Washington State	-- Relevant major	63%	50%	--	63%	48%	53%
	Relevant minor	38%	44%	--	38%	52%	45%
	No major or minor	0%	6%	--	0%	0%	1%
Western	-- Relevant major	100%	92%	92%	100%	95%	94%
	Relevant minor	0%	8%	8%	0%	5%	6%
	No major or minor	0%	0%	0%	0%	0%	0%
All Institutions	-- Relevant major	64%	79%	89%	73%	68%	73%
	Relevant minor	36%	20%	11%	27%	30%	26%
	No major or minor	0%	1%	0%	0%	2%	1%

TABLE 16 : ANALYSIS OF GPA IN MAJOR BY LEVEL

		GPA IN MAJOR			TOTAL # OF STUDENTS	NUMBER OF STUDENTS IN EACH GPA GROUP							
						2.00/2.25	2.26/2.50	2.51/2.75	2.76/3.00	3.01/3.25	3.26/3.50	3.51/3.75	3.76/4.00
		AVG	LOW	HIGH	COUNT	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL	% OF TOTAL
	ENDORSEMENT LEVEL												
ALL INSTITUTIONS	ALL STUDENTS	3.22	2.00	4.00	1540	1.49	4.09	9.16	15.00	20.91	22.08	17.34	9.94
	ELEMENTARY	3.20	2.02	4.00	827	0.73	2.90	7.98	13.54	19.83	22.97	20.19	11.85
	SECONDARY	3.15	2.00	4.00	653	2.60	5.82	10.57	16.69	21.59	20.98	14.24	7.50
	K-12	3.33	2.25	4.00	127	0.79	2.36	7.09	13.39	18.90	20.47	18.90	18.11
INSTITUTION	ENDORSEMENT LEVEL												
CWU	ALL STUDENTS	3.21	2.08	4.00	363	0.83	6.34	11.29	16.25	17.91	15.98	17.91	13.50
	ELEMENTARY	3.31	2.08	4.00	212	0.94	3.77	8.02	13.68	16.98	14.62	24.53	17.45
	SECONDARY	3.05	2.25	4.00	124	0.81	11.29	16.13	19.35	17.74	18.55	9.68	6.45
	K-12	3.35	2.25	4.00	79	1.27	2.53	8.86	12.66	15.19	16.46	18.99	24.05
EWU	ALL STUDENTS	3.23	2.07	3.98	324	1.85	2.47	8.33	12.65	22.84	25.31	18.52	8.02
	ELEMENTARY	3.28	2.07	3.98	170	0.59	2.35	9.41	10.00	17.06	31.18	20.00	9.41
	SECONDARY	3.18	2.14	3.97	154	3.25	2.60	7.14	15.58	29.22	18.83	16.88	6.49
	K-12	3.29	2.47	3.96	4		25.00				50.00		25.00
UW	ALL STUDENTS	3.22	2.32	3.91	248		4.44	7.66	14.11	26.21	24.60	14.11	8.87
	ELEMENTARY	3.21	2.36	3.91	139		4.32	8.63	17.99	23.74	21.58	13.67	10.07
	SECONDARY	3.22	2.32	3.87	98		5.10	7.14	9.18	28.57	27.55	15.31	7.14
	K-12	3.34	2.81	3.86	15				13.33	26.67	33.33	13.33	13.33
WSU	ALL STUDENTS	3.13	2.00	4.00	255	4.71	6.67	14.12	15.69	15.69	18.04	13.33	11.76
	ELEMENTARY	3.21	2.02	4.00	135	1.48	4.44	11.11	14.81	20.00	21.48	14.07	12.59
	SECONDARY	3.03	2.00	4.00	117	8.55	9.40	16.24	17.95	11.97	13.68	11.11	11.11
	K-12	3.29	2.55	3.62	9			22.22		11.11	22.22	44.44	
WWU	ALL STUDENTS	3.28	2.16	4.00	350	0.57	1.14	5.14	16.00	22.29	26.57	20.86	7.43
	ELEMENTARY	3.33	2.16	4.00	171	0.58		3.51	12.28	22.81	27.49	25.15	8.19
	SECONDARY	3.22	2.23	4.00	160	0.62	2.50	7.50	19.37	20.00	26.25	16.87	6.87
	K-12	3.25	2.78	3.94	20				25.00	35.00	20.00	15.00	5.00

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listed in each individual student's records as fulfilling the requirements for the major. Thus this average does not necessarily include all courses taken in the student's major department but only those required to meet the specific requirements for the major. In the few cases of students with double majors, the major gpa selected was that for a major in biology, English, history, mathematics, or social studies or for the most recently completed major.

Because data on the major gpa for all of each institution's graduates are not available and because grading practices and students may vary among institutions and among departments in a single institution, it is difficult to interpret these data in any precise and meaningful way. It is especially difficult to make comparisons among institutions on the basis of these data. The average cumulative gpa for all graduates is a rough indicator of differences among the institutions' grading practices, and Table 17 reports the major gpa's as a percentage of these all-graduate cumultive gpa's. These percentages may allow some rough comparisons among institutions.

From these tables, a few general observations may be made:

- The major gpa for elementary teachers is higher than that for secondary teachers. At least part of the elementary students' higher <u>cumulative</u> gpa may be accounted for by their higher grades in the major, which in a large majority of the cases is in an education-related field. At the one institution in which a small percentage of elementary teachers major in education-related fields, the University of Washington, there is almost no difference in the major gpa's of elementary and secondary teachers.

Table 17

MAJOR GPA'S OF CERTIFICATE EARNERS AS A PERCENTAGE OF THE ALL-GRADUATE CUMULATIVE GPA AT EACH INSTITUTION

	All Students	Elementary	Secondary	K-12
CWU	108%	112%	103%	113%
EWU	105%	107%	103%	107%
UW	106%	105%	106%	110%
WSU	109%	112%	106%	115%
WWU	109%	111%	107%	108%

- The average major gpa of certificate earners at each institution exceeds the average cumulative gpa for all that institution's graduates by from five to nine percentage points.
- The differences among institutions on this comparison are so small that there appears to be little disparity in the institutions' ability to attract students who are strong in their majors into teaching.
- Over 85 percent of the certificate earners had major gpa's above 2.75. Over 27 percent had major gpa's above 3.5.
- Twenty-three certificate earners (1.5%) had major gpa's of 2.25 or below. Twelve of these students were from Washington State, but only the University of Washington had no students in this category.

Course work completed. The transcripts of a sample of elementary teachers and of secondary teachers of biology, English, history/government, mathematics, and social studies were analyzed. The results of this analysis are reported in Table 18 and in more detail in Tables A-4 through A-9 in the Appendix. Several things should be borne in mind in interpreting these data:

Table 18

AVERAGE QUARTER HOURS OF COURSE WORK TAKEN BY ELEMENTARY AND FIVE TYPES OF SECONDARY TEACHERS AT FIVE PUBLIC UNIVERSITIES, 1982-83

	Elementary	Secondary Biology	Secondary English	Secondary History/Govt.	Secondary Math	Secondary Soc. Studies
Total	219	251	236	239	238	236
Total Non-education	123	192	178	185	177	177
Total Education	96	58	58	55	60	58
Unclassified	1	1	0	0	1	0
Biology	7	53	9	6	12	8
Other Sciences	8	32	9	10	29	8
Foreign Language/Comm.	15	11	24	22	11	16
Education Departments	78	46	47	49	46	46
English	15	15	62	19	11	17
Other Humanities	17	15	17	13	13	12
History	9	7	15	56	5	35
Other Social Sciences	38	26	32	47	27	50
Mathematics	11	14	6	5	59	6
Other Fields	21	31	14	12	24	37
Number of Students	154	56	87	28	41	122

1. The data for elementary teachers are based on a random sample and are, therefore, estimates of the averages of the total group. Calculations of the standard errors suggest that the totals should be within ± 4 quarter hours of the actual averages and that the subject area averages should be within ± 2 quarter hours of actual averages.

2. Complete transcripts were not available on a few of the students in the group to be analyzed. In eight cases, the transcripts were so incomplete that the students were eliminated from the sample; four elementary teachers, two biology teachers, one English teacher, and one mathematics teacher were eliminated for this reason. In cases in which transcripts were nearly complete and in which the amount of undocumented course work was known, that course work has been categorized as "unclassified" in the tables.

3. The course work of students was classified into ten different categories according to the departments in which it was offered:

   Biology -- biology, botany, environmental science, zoology, and other life science departments.

   Other Science -- astronomy, chemistry, engineering, geology, physics, and other chemical and physical science departments.

   Foreign Language and Communication -- foreign language, linguistics, drama, journalism, speech and other communications departments.

   Education Departments -- education, business education, early childhood education, special education, and other education-related departments.

   English -- English departments only.

Other Humanities -- art, comparative literature, liberal studies, music, philosophy, religion, and other humanities departments.

History -- history departments only.

Other Social Science -- anthropology, area studies, economics, ethnic studies, geography, political science, psychology, sociology, and women's studies departments.

Mathematics -- mathematics, computer science, quantitative methods, and statistics departments.

Other Fields -- agriculture, health, home economics, industrial and technical, physical education, and other unclassified departments.

4. Within all of the categories except Education, course work was classified as education-related or non-education-related. Courses described as being for teachers or about education and all courses taught in education departments were classified as education-related. The row labelled Total Education on Tables 18 and A-4 through A-9 reflects the sum of the education-related course work in all department categories.

5. The lows reported in Tables A-4 through A-9 should be interpreted with caution. Some course work is unclassified because transcripts were unavailable. That unclassified course work may include courses that might raise the reported lows. In addition, that some students took no biology and some took no other science does not mean that any student took no college-level science at all. All institutions require some science for graduation, but that science course work may not include biology or may consist entirely of biology.

6. Students receiving the Provisional Certificate were not specifically endorsed as biology teachers but only as teachers of natural science. These individuals were included in the category of biology teachers if, according to the recommending institution's records, their endorsement in natural science was based on completion of a program in biology.

Observations on <u>elementary</u> teachers include:

- Prospective elementary teachers complete on the average the equivalent of 2.6 full-time quarters (39 quarter hours) of college work beyond the minimum graduation requirement of 180 quarter hours. These averages range from 208 quarter hours at Central to 239 at the University of Washington.
- At all universities except the University of Washington, some elementary teachers were able to complete certification and baccalaureate requirements within the 180 quarter hour minimum. The minimum number of quarter hours in which elementary certification was achieved at the University of Washington was 200.
- The composite elementary teacher completes an academic program consisting of:
    - 5.2 full-time quarters in education department courses (plus another full-time quarter of education-related courses taught in other departments)
    - 3.1 full-time quarters in history and social science courses
    - 2.0 full-time quarters in English, communications, and foreign language courses
    - 1.7 full-time quarters in science and mathematics courses

1.4 full-time quarters in courses in other fields

1.1 full-time quarters in art, music, and other humanities courses

- Despite these averages, it seems to be possible for some students to become certified without course work in one or more of the ten department categories except Education and Other Social Science. This practice varies by institution, however. Only the University of Washington certified students without college-level English. Only Central and the University of Washington certified students without college-level mathematics. And only Eastern and the University of Washington certified students without college-level art, music, or other humanities courses. Once again, however, these apparent results should be interpreted cautiously since some students' transcripts were incomplete.

Observations on <u>secondary</u> teachers include:

- Biology teachers complete on average the equivalent of 4.7 full-time quarters (71 quarter hours) beyond the minimum 180-quarter-hour requirement for graduation, ranging from an average of 240 quarter hours at Eastern to 269 quarter hours at Western.
- The other four types of teachers completed on average over 3.5 full-time quarters beyond the minimum for graduation, ranging from an average of 216 quarter hours for mathematics teachers at Washington State to an average of 270 quarter hours for mathematics teachers at the University of Washington.
- Some students in all categories but biology were able to complete degree and certification requirements within the minimum gradution requirements. The minimum in biology was 194 quarter hours. At the

University of Washington, the minimum number of quarter hours taken by teachers of biology (258 q.h.) and mathematics (225 q.h.) were considerably higher than minimums at other institutions.

- Composite profiles of the academic backgrounds of secondary teachers:

Biology teachers:

3.5 full-time quarters of biology

3.1 full-time quarters of other science and mathematics

3.1 full-time quarters of education department courses (plus .8 quarter of education-related courses taught in other departments)

2.7 full-time quarters of English, foreign language, communications, and humanities

2.2 full-time quarters of history and social science

2.1 full-time quarters of courses in other fields

English teachers:

4.1 full-time quarters of English

3.1 full-time quarters of education department courses (plus .7 quarter of education-related courses in other departments)

3.1 full-time quarters of history and social science

2.7 full-time quarters of foreign language, communications, and humanities

1.6 full-time quarters of science and mathematics

.9 full-time quarter of courses in other fields

History/Government teachers:

3.7 full-time quarters of history

3.6 full-time quarters of English, foreign language, communications, and humanities

3.3 full-time quarters of education department courses (plus .4 quarter of education-related courses in other departments)

3.1 full-time quarters of other social sciences

1.4 full-time quarters of science and mathematics

.8 full-time quarter of courses in other fields

Mathematics teachers:

3.9 full-time quarters of mathematics

3.1 full-time quarters of education department courses (plus .9 quarter of education-related courses in other departments)

2.7 full-time quarters of science

2.3 full-time quarters of English, foreign language, communications, and humanities

2.1 full-time quarters of history and social science

1.6 full-time quarters of courses in other fields

Social studies teachers:

3.3 full-time quarters of social science

3.1 full-time quarters of education department courses (plus .8 quarter of education-related courses in other departments)

3.0 full-time quarters of English, foreign language, communication, and humanities

2.5 full-time quarters of courses in other fields

2.3 full-time quarters of history

1.5 full-time quarters of science and mathematics

- The average amount of course work in the field of endorsement sometimes varies considerably from institution to institution. Biology teachers at Eastern averaged 38 quarter hours of biology; those at

Central and Western averged 69 quarter hours. English teachers at Washington State averaged 50 quarter hours of English; those at the University of Washington averaged 74 quarter hours. Social studies teachers at Eastern and Washington State averaged 68 quarter hours of history and social science; those at Western averaged 111 quarter hours. These differences parallel differences in the academic bases of endorsements analyzed in Table 15.

- Eastern consistently had the lowest minimum amount of course work in the field of endorsement--19 hours in biology, nine hours in English (this individual, however, had a speech major which, under the rules for provisional certificates, is endorsed as English/Language Arts), 15 hours in mathematics, and for social studies teachers no history and eight hours of social science (these are minimums for different individuals).
- As with elementary teachers, it appears to be possible for some secondary teachers to become certified without any course work in one or more of the ten categories except for education, social science, and the field of endorsement. Here, too, there is some variation among institutions. For example, secondary teachers at all institutions except Washington State took courses in the English department.

V. Employment

Each year the placement offices of the state's teacher preparation institutions collect data on the employment status of students who earned certificates during the previous year. These data are submitted to OSPI and have been included in this study. Table 19 summarizes these data for certificate earners at the state universities in 1982-83.

TABLE 19: EMPLOYMENT STATUS OF 1982-83 CERTIFICATE COMPLETERS AS OF FALL, 1983

	INSTITUTION																							
	ALL INSTITUTIONS				CWU				EWU				UW				WSU				WWU			
	LEVEL				LEVEL				LEVEL				LEVEL				LEVEL				LEVEL			
	ALL	ELEM	SECN	K-12	ALL	ELEM	SECN	K-12	ALL	ELEM	SECN	K-12	ALL	ELEM	SECN	K-12	ALL	ELEM	SECN	K-12	ALL	ELEM	SECN	K-12
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
TOTAL NO. OF STDNTS	1540	827	653	127	363	212	124	79	324	170	154	4	248	139	98	15	255	135	117	9	350	171	160	20
TEACHING IN-STATE	31.8	32.5	29.9	45.7	32.5	35.4	27.4	50.6	32.4	32.9	31.8	50.0	35.5	37.4	32.7	26.7	28.6	31.1	25.6	11.1	30.0	25.7	31.3	55.0
TEACHING OUT/STATE	5.4	5.3	5.2	11.0	4.1	4.2	3.2	7.6	6.5	6.5	6.5	50.0	6.5	6.5	6.1	20.0	6.3	6.7	4.3	33.3	4.3	3.5	5.6	0.0
SUBSTI-TUTING	22.8	25.8	20.4	13.4	23.1	26.4	18.5	16.5	29.3	33.5	24.7	0.0	21.0	20.9	21.4	20.0	18.4	21.5	17.1	11.1	20.9	24.6	19.4	0.0
NON-CERT. EDUC-REL.	3.2	4.1	2.0	2.4	5.2	6.6	3.2	1.3	2.2	1.8	2.6	0.0	1.6	2.9	0.0	6.7	1.6	2.2	0.9	0.0	4.3	5.8	2.5	5.0
NON-EDUC. POSITION	13.4	10.3	17.8	4.7	11.0	6.6	19.4	3.8	15.1	9.4	21.4	0.0	17.7	18.0	18.4	6.7	11.4	8.1	15.4	0.0	12.6	11.1	14.4	10.0
UNEMP-NOT SEEKING	1.4	2.1	0.6	0.8	0.8	0.9	0.0	1.3	3.4	5.3	1.3	0.0	1.6	1.4	2.0	0.0	0.8	1.5	0.0	0.0	0.6	1.2	0.0	0.0
U-SEEKING EDUC-REL.	4.9	5.2	4.0	4.7	2.2	0.5	4.8	1.3	2.2	3.5	0.6	0.0	2.0	2.2	1.0	6.7	5.1	6.7	3.4	0.0	12.0	14.0	8.7	20.0
U-SEEKING NON-EDUC.	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.5	0.0	0.0	0.3	0.6	0.0	0.0
ATTENDING GRAD SCHL	2.7	1.6	4.0	1.6	2.8	1.9	4.0	1.3	3.4	1.8	5.2	0.0	3.2	2.2	4.1	6.7	2.7	1.5	4.3	0.0	1.4	0.6	2.5	0.0
OTHER	0.6	0.4	0.9	0.8	0.3	0.0	0.8	0.0	0.0	0.0	0.0	0.0	1.2	0.7	1.0	6.7	0.8	0.7	0.9	0.0	1.1	0.6	1.9	0.0
UNKNOWN	13.7	12.5	15.3	15.0	17.9	17.5	18.5	16.5	5.6	5.3	5.8	0.0	9.7	7.9	13.3	0.0	23.5	18.5	28.2	44.4	12.6	12.3	13.7	10.0

Employment status is classified into 11 different catgegories. Many of these categories are self-expanatory, but four require additional comment:

Substituting -- A few teachers indicated that they had long-term substitute positions for regular teachers on leave, but most were substituting on call while seeking more permanent employment.

Non-certified education-related -- This category includes teachers working for school districts in secretarial, custodial, and teacher aide positions as well as some individuals teaching in pre-schools.

Unemployed seeking education-related employment/Unemployed seeking non-education employment -- Many teachers placed themselves in both categories, but because only one classification could be coded, they were classified as seeking education employment only.

Unknown -- These are teachers who did not respond to the universities' mail and telephone inquiries.

In interpreting these data, it should be remembered that this information was collected in the fall of 1983. The employment status of many of these individuals may have changed subsequently.

In judging the success of an institution's graduates, there is considerable debate over the way in which the institution's placement percentage should be calculated. Many suggest that those whose employment status is unknown should be excluded. Others argue that teaching and substituting and perhaps even non-certified education employment should be counted as successful placements. Some believe that students not seeking employment, attending graduate school, or seeking non-education employment should be excluded from the calculation since they are not available for

teaching positions. Table 20 reports placement percentages calculated in a variety of ways that reflect these differences of opinion.

Observations on these data include:

- Fewer than half of the certificate earners were able to secure employment as regular classroom teachers. Considerably more, however, perhaps as many as three-fourths, were making some contribution to the state's K-12 educational system through teaching, substituting or other work in the schools.
- The placement rates of elementary and secondary teachers were about the same even though 27 percent more individuals had prepared as elementary teachers. These figures suggest that there is more demand for elementary than for secondary teachers and that the teacher preparation system has adjusted itself to this difference.
- The placement rate for K-12 teachers was considerably higher. As we have already noted, 56 percent of K-12 teachers were endorsed in special education and 24 percent were endorsed in music.
- Almost twice as high a percentage of secondary teachers had taken a position outside education or had gone to graduate school than had elementary teachers. This may be the result of the lower demand for secondary teachers and the fact that the preparation of secondary teachers is less education-specific than that of elementary teachers. In this connection, it should be noted that at the University of Washington, where very few elementary teachers major in education-related fields, the percentages of elementary and secondary students accepting non-education employment are about equal.

Table 20

PLACEMENT PERCENTAGES FOR FIVE PUBLIC UNIVERSITIES
1982-83

	All	CWU	EWU	UW	WSU	WWU
As a percentage of all students prepared						
Teaching only	37%	37%	39%	42%	35%	34%
Teaching and substituting	60%	60%	68%	63%	53%	55%
Teaching, substituting, and non-certificated	63%	65%	70%	65%	55%	59%
As a percentage of those with known employment status						
Teaching only	43%	45%	41%	46%	46%	39%
Teaching and substituting	69%	73%	72%	70%	70%	63%
Teaching, substituting, and non-certificated	73%	79%	75%	71%	72%	68%
As a percentage of those known and available for education employment						
Teaching only	45%	47%	44%	49%	48%	40%
Teaching and substituting	73%	76%	78%	74%	74%	65%
Teaching, substituting, and non-certificated	77%	83%	80%	75%	76%	70%

- The percentage of University of Washington students who took jobs outside of education is considerably higher than that at any other institution. This difference is almost entirely accounted for by elementary teachers.
- Though there are some differences in placement rates at the various institutions, these are small enough to suggest that the career prospects of a student preparing to be a teacher at one state institution are not significantly better or worse than those of his or her peers at other institutions.

Employment of secondary teachers by field of endorsement. Table 21 reports the employment status of secondary teachers by the fields in which they are endorsed. Teachers endorsed in two or three categories are counted in each. Because the specific teaching assignments of employed teachers are not known, these data provide only an approximate indicator of the employment opportunities in the various subjects. Table 22 presents these placement data calculated as percentages of these with known employment status.

Observations on these data include:

- Placement rates into teaching vary considerably by subject from two-thirds or more of those prepared in special education, mathematics, and music to less than one-fourth of those prepared in physical education, health, art, and traffic safety.
- Even in fields with low placement rates into teaching, the percentages of individuals making a contribution to the state's educational system through teaching, substituting, or non-certified education employment remains high, around 60 percent.

TABLE 21 : EMPLOYMENT STATUS OF SECONDARY CERTIFICATE EARNERS BY SUBJECT

	ALL CERTIFICATE COMPLETERS	EMPLOYMENT STATUS							
		TEACHING	SUB-STITUTING	NON-CERT. EDUC. POS.	NON-EDUC. POSITION	UNEMPLOYED	ATTENDING GRAD SCHOOL	OTHER	UNKNOWN
	COUNT	PERCENT OF COUNT	PERCENT OF COUNT	PERCENT OF COUNT	PERCENT OF COUNT	PERCENT OF COUNT	PERCENT OF COUNT	PERCENT OF COUNT	PERCENT OF COUNT
SUBJECT OF ENDORSEMENT									
AGRICULTURE	17	47.06	11.76		11.76		11.76		17.65
ART	24	16.67	37.50		16.67	12.50	8.33		8.33
BUSINESS	41	46.34	12.20	2.44	24.39	2.44	2.44	2.44	7.32
DISTRIB. EDUCATION	6	50.00	16.67		16.67				16.67
ENGLISH	88	37.50	22.73	2.27	13.64	2.27	5.68	1.14	14.77
FOREIGN LANGUAGES	36	33.33	19.44	2.78	11.11	11.11	8.33		13.89
HEALTH EDUCATION	39	15.38	33.33	5.13	28.21		2.56		15.38
HOME ECONOMICS	38	23.68	21.05		15.79	10.53			28.95
INDUSTRIAL ARTS	43	41.86	16.28		20.93	6.98	6.98	4.65	2.33
MATHEMATICS	42	71.43	2.38		9.52	2.38		2.38	11.90
MUSIC	23	65.22	8.70		17.39				8.70
NATURAL SCIENCES	85	49.41	11.76	1.18	17.65	1.18	3.53		15.29
OTHER EDUC.-RELATED	6	50.00			33.33	16.67			
PHYSICAL EDUCATION	192	21.88	27.60	4.17	19.79	4.69	4.17	1.04	16.67
SOCIAL SCIENCES	136	31.62	22.06	1.47	19.85	3.68	4.41	0.74	16.18
SPECIAL EDUCATION	8	75.00							25.00
SPEECH / DRAMA	8	25.00	37.50		12.50				25.00
TRAFFIC SAFETY	18	22.22	27.78	5.56	38.89				5.56

Table 22

SECONDARY TEACHING PLACEMENTS AS A PERCENTAGE OF THOSE WITH KNOWN EMPLOYMENT STATUS, BY SUBJECT

	Teaching Only	Teaching and Substituting	Teaching, Subbing, and Non-Certificate
Agriculture	57%	71%	71%
Art	17%	59%	59%
Business	50%	63%	66%
Distributive Ed.	60%	80%	80%
English	44%	71%	73%
Foreign Language	39%	61%	65%
Health Education	18%	58%	64%
Home Economics	33%	63%	63%
Industrial Arts	43%	60%	60%
Mathematics	81%	84%	84%
Music	71%	81%	81%
Natural Sciences	58%	72%	74%
Other Ed.-Related	50%	50%	50%
Physical Education	26%	59%	64%
Social Sciences	38%	64%	66%
Special Education	100%	100%	100%
Speech/Drama	33%	83%	83%
Traffic Safety	24%	53%	59%

- There is little evidence that industrial demand for mathematics and science graduates is drawing prepared teachers in those fields away from teaching, at least in the year after they become certified.

Academic achievement and employment. Tables 23 and 24 present some evidence of the academic qualifications of those certificate earners who are able to secure teaching positions. Observations on these data include:

- High college grades overall and in the major appear to confer some marginal advantage in the teaching market, especially for elementary and secondary teachers.
- Nevertheless, some certificate earners who graduate in the bottom fifth of their college class still succeed in finding teaching positions, though at a rate somewhat lower than their proportion of all certificate earners.
- A large majority of the students who graduated in the top fifth of their class remained in education, 50 percent in regular teaching jobs, 25 percent substituting, and 3 percent in non-certified education-related positions. By comparison, only 12 percent took non-education jobs, 6 percent were unemployed, and 3 percent attended graduate school.

VI. College Admissions Characteristics

The Washington Pre-College Testing (WPCT) Program supplied college admissions data on first teaching certificate earners at all Washington colleges and universities. The University of Washngton's Educational Assessment Center graciously provided technical assistance and computer facilities for the compilation of these data.

TABLE 23 : GPA'S OF CERTIFICATE COMPLETERS BY EMPLOYMENT STATUS

		ALL CERTIFICATE COMPLETERS	EMPLOYMENT STATUS						
			TEACHING	SUB-STITUTING	NON-CERT. EDUC. POS.	NON-EDUC. POSITION	UNEMPLOYED	ATTENDING GRAD SCHOOL	OTHER / UNKNOWN
TOTAL C-EARNERS	COUNT	1540	572	351	49	206	100	41	221
CUMULATIVE GPA	ALL | AVERAGE	3.12	3.17	3.10	3.07	3.08	3.10	3.20	3.07
"	ELEM | AVERAGE	3.16	3.23	3.13	3.10	3.12	3.18	3.09	3.06
"	SECN | AVERAGE	3.07	3.11	3.02	2.93	3.05	2.98	3.24	3.07
"	K-12 | AVERAGE	3.18	3.18	3.19	3.37	3.12	2.94	3.30	3.21
GPA IN MAJOR	ALL | AVERAGE	3.22	3.26	3.18	3.26	3.16	3.26	3.27	3.18
"	ELEM | AVERAGE	3.28	3.35	3.21	3.29	3.22	3.35	3.17	3.19
"	SECN | AVERAGE	3.15	3.16	3.11	3.15	3.12	3.11	3.30	3.16
"	K-12 | AVERAGE	3.33	3.37	3.31	3.55	3.12	3.15	3.40	3.27

TABLE 24: GPA'S OF CERTIFICATE COMPLETERS BY EMPLOYMENT STATUS

		EMPLOYMENT STATUS							
		ALL CERTIFICATE COMPLETERS	TEACHING	SUB-STITUTING	NON-CERT. EDUC. POS.	NON-EDUC. POSITION	UNEMPLOYED	ATTENDING GRAD SCHOOL	OTHER / UNKNOWN
TOTAL C-EARNERS	COUNT	1540	572	351	49	206	100	41	221
NO. OF C-EARNERS IN TOP QUINTILE	PERCENT OF COUNT	26.6	30.9	25.4	24.5	20.9	21.0	29.3	24.9
NO. OF C-EARNERS IN LOW QUINTILE	PERCENT OF COUNT	11.3	9.1	13.7	14.3	15.5	9.0	4.9	10.9

The decision to seek these data directly from WPCT was made for three reasons. First, WPCT could provide data on the certificate completers from all Washington institutions. Because of time and resource constraints, data collection visits were possible only at the five public universities. Second, because a significant percentage of students at the public universities are transfer students from other institutions, the public universities' records of WPCT scores are to some extent incomplete. Transfer students, especially those with the associate degree from a community college, are often not required to submit admissions test scores because they have already demonstrated their academic ability in college-level courses. In addition, because admissions tests other than the WPCT are permissable, some students may submit scores on the other tests rather than those on the WPCT. Finally, WPCT was able to provide college admissions data in addition to test scores, in particular the students' high school grade point average.

Tables 25, 26, and 27 analyze college admissions data for 973, or 45.5 percent, of the 2,139 individuals who completed teacher preparation programs at Washington institutions in 1982-83 and who were subsequently certified by OSPI. The tables compare certificate earners' high school gpa's, WPCT verbal composite scores, and WPCT quantitative composite scores to these characteristics of two other groups of WPCT test takers, all Washington high school students who took the WPCT in the spring or fall of 1978 and all freshmen with WPCT scores who entered Washington public universities in the fall of 1979. Tables A-11 and A-12 in the appendix include frequency distributions of certificate earners' test scores. Several things should be borne in mind in interpreting these data:

Table 25 COLLEGE ADMISSIONS DATA COMPARISONS -- HIGH SCHOOL GPA

		COMPARISON GROUPS	
		ALL 1979 HIGH SCHOOL TEST-TAKERS	ALL 1979 PUBLIC 4-YEAR FRESHMAN
COMPARISON GROUP GPA	MEAN	3.05	3.27
CERTIFICATE EARNERS GPA	MEAN	3.28	3.28
BREAKDOWN BY PERCENTILE			
BELOW 50TH PERCENTILE	PERCENT OF C-EARNERS	32.8	47.9
AT OR ABOVE 50TH PERCENTILE	PERCENT OF C-EARNERS	67.2	52.1
BREAKDOWN BY QUINTILE			
BOTTOM QUINTILE	PERCENT OF C-EARNERS	7.2	19.0
SECOND QUINTILE	PERCENT OF C-EARNERS	15.3	19.1
THIRD QUINTILE	PERCENT OF C-EARNERS	21.1	20.8
FOURTH QUINTILE	PERCENT OF C-EARNERS	27.1	21.8
TOP QUINTILE	PERCENT OF C-EARNERS	29.3	19.3

Table 26 COLLEGE ADMISSIONS DATA COMPARISONS -- WPCT VERBAL COMPOSITE

		COMPARISON GROUPS	
		ALL 1979 HIGH SCHOOL TEST-TAKERS	ALL 1979 PUBLIC 4-YEAR FRESHMAN
COMPARISON GROUP VC	MEAN	48.4	50.8
CERTIFICATE EARNERS VC	MEAN	49.6	49.6
BREAKDOWN BY PERCENTILE			
BELOW 50TH PERCENTILE	PERCENT OF C-EARNERS	43.8	55.5
AT OR ABOVE 50TH PERCENTILE	PERCENT OF C-EARNERS	56.2	44.5
BREAKDOWN BY QUINTILE			
BOTTOM QUINTILE	PERCENT OF C-EARNERS	10.7	20.1
SECOND QUINTILE	PERCENT OF C-EARNERS	19.8	23.6
THIRD QUINTILE	PERCENT OF C-EARNERS	25.0	18.7
FOURTH QUINTILE	PERCENT OF C-EARNERS	23.0	18.2
TOP QUINTILE	PERCENT OF C-EARNERS	21.5	19.3

Table 27 COLLEGE ADMISSIONS DATA COMPARISONS -- WPCT QUANTITATIVE COMPOSITE

		COMPARISON GROUPS	
		ALL 1979 HIGH SCHOOL TEST-TAKERS	ALL 1979 PUBLIC 4-YEAR FRESHMAN
COMPARISON GROUP QC	MEAN	49.7	53.2
CERTIFICATE EARNERS QC	MEAN	50.3	50.3
BREAKDOWN BY PERCENTILE			
BELOW 50TH PERCENTILE	PERCENT OF C-EARNERS	44.9	60.6
AT OR ABOVE 50TH PERCENTILE	PERCENT OF C-EARNERS	55.1	39.2
BREAKDOWN BY QUINTILE			
BOTTOM QUINTILE	PERCENT OF C-EARNERS	14.9	24.0
SECOND QUINTILE	PERCENT OF C-EARNERS	18.6	25.0
THIRD QUINTILE	PERCENT OF C-EARNERS	24.0	23.6
FOURTH QUINTILE	PERCENT OF C-EARNERS	25.4	17.3
TOP QUINTILE	PERCENT OF C-EARNERS	17.1	10.1

1. The data were compiled by comparing the names and birthdates of certificate earners with those of WPCT test takers in 1977, 1978, and 1979 and the names only with test takers in 1975 and 1976. WPCT did not collect students' birthdates before 1977.
2. As a result, there may be a few incorrect matches included in the data, especially among the 302 matches with 1975 and 1976 test takers.
3. In addition, students who married and changed their names after high school but before completing certificate programs will be excluded as will students who took the test before 1975.
4. Because the WPCT is not usually taken by out-of-state students, admissions data for certificate earners who graduated from a high school outside Washington are excluded.
5. Because community colleges do not require WPCT scores for admission, some community college transfers will not have taken the WPCT.
6. Although high school gpa's and WPCT scores are reasonably stable from year to year, it should be noted that in 1978 the average high school gpa for all test takers was slightly lower than in previous years while the average verbal and quantitative test scores were slightly higher.

Observations on these data include:

- The average high school gpa of certificate earners was significantly higher than that for all WPCT test takers, and the average verbal and quantitative composites were somewhat higher.

- The average high school gpa's of certificate earners and entering university freshmen were about the same, but certificate earners' test scores were somewhat lower on average than those for entering freshmen.
- These data and the data on college grade point averages suggest that as a group, those who become teachers are what are often called "over-achievers," that is, students who perform much better in course work than their test scores would lead one to predict. Although the phenomenon of "over-achievement" is not well understood, one might speculate that potential teachers are drawn from that group of students who have, in a sense, mastered school, those who understand and are comfortable with the demands that schools make of students and who have the abilities and selfdiscipline (something not well measured by admissions tests) to meet those demands.
- The distribution of certificate earners' admissions data suggest that they are about proportionately represented among those with the highest high school gpa's and verbal composite scores.
- By contrast, teaching appears not to attract a proportionate percentage of the highest scorers on the quantitative test. Only 10.1 percent of certificate earners had quantitative composite scores in the top fifth of all entering freshmen; 24 percent had quantitative scores in the bottom fifth of this group.

APPENDICES

BASIC DATA
INITIAL AND PROVISIONAL CERTIFICATE COMPLETERS
1982-83

1	NAME
2	RECOMMENDING INSTITUTION
3	DATE OF BIRTH
4	SEX
5	ETHNICITY
6	CERTIFICATE DATE
7	CERTIFICATE TYPE
8	ENDORSEMENTS AND LEVELS
9	
10	
11	DATE OF BACHELOR'S DEGREE
12	DATE OF PROGRAM COMPLETION
13	OVERALL G.P.A. AT RECOMMENDING INSTITUTION
14	MAJOR G.P.A.
15	MAJOR(S)
16	
17	MINOR(S)
18	
19	
20	WPCT VERBAL
21	WPCT QUANTITATIVE
22	EMPLOYMENT STATUS FALL 1983

Transcript Analysis
University of Washington

Biology -- BIOC, BIOEN, BI HS, BIOL, BOT, B STR, EVN S, FOR B, GENET, MEDCH, MICRO, PATH, P BIO, ZOOL

23 ____ n-ed BIOL 104-5, 499-1-5
24 ____ ed

Other Science -- AA, ASTR, ATM s, CER E, CEWA, CH E, CHEM, CIVE, E E, ENGR, FISH, FOR P, GEOL, GPHY, H A&S 220-22, M E, MET E, MIN E, NUC E, OCEAN, O ENG, PCEUT, PHYS

25 ____ n-ed
26 ____ ed PHYS 210/11/12-5, 405/6-2, 407/8/9-5, 410-1-2, 411/12/13-1-4, 539-

Com. & Lang. -- CMU, DRAMA, FREN, GERM, LAT, LING, SPAN, SPCH
CMU 463-5
DRAMA 200-3, 336-3, 435-3, 436-3, 536/7/8-4
FREN 474-5
27 ____ n-ed GERM 479-3, 575/6/7-3
28 ____ ed LAT 475/6-3
LING 445-3, 449-3
SPAN 128-5
SPCH 203-5, 341-2 1/2, 455-4, 456-4, 550-3

Education -- EDADM, EDC&I, EDEPS, EDHEC, EDPSY, EDUC

29 ____ ed

English -- ENGL

30 ____ n-ed ENGL 441/2/3-5, 444-3-5, 504-5, 555/6/7/8-5, 560-3-6
31 ____ ed

Other Hum. -- ART, ART H, CHID, CLAS, CLIT, DANCE, H A&S 210-12, MUSAP, MUSIC, PHIL, RELIG

32 ____ n-ed ART 200-3, 300/1/2/2/4-3, 491/2/3/4-2
33 ____ ed MUSIC 220/1/6/7/9/30-3, 231-1-2, 232-1, 340-3, 431/2-3. 434/5/6-2, 440/1/2/3-3, 496-1-3, 524/5-3, 530-3, 540-3, 542-3, 551-3, 561-3

History -- HST, HSTAA, HSTAM, HSTAS, HSTEU

34 ____ n-ed
35 ____ ed

Other Soc. Sci. -- AAS, AFRAM, AIS, ANTH, ARCHY, B ECN, BS&G, CHSTU, CLAR, ECON, GEOG, H A&S 230-32, HSS, LAE, PHY A, POL S, PSYCH, SIS, SISAF, SISEA, SISRE, SISSA, SOC, SO JU, WOMEN

36 ____ n-ed
37 ____ ed PSYCH 516-3
WOMEN 415-3, 416-3

Math -- AMATH, CSCI, MATH, QMETH, Q SCI, STAT

38 ____ n-ed MATH 170/1-3, 411/12-3, 444/5-3, 497-2-5
39 ____ ed

Other -- H ED, KIN, KINPE, LIBR, NUTR
H ED 251-3, 471-2, 481-3
40 ____ n-ed KIN 303-4
41 ____ ed KINPE 295-2, 311-2, 312-2 1/2, 314-3, 316-3 365-4, 455-4, 460-3, 502-3-5, 503-1, 506-3
LIBR 450-3, 451-3, 549-3, 550-3, 551-2, 568-3, 570-3
NUTR 360-3, 560-1-5

TABLE A-1: CUMULATIVE GPA COMPARISONS FOR STUDENTS WITH ELEMENTARY ENDORSEMENTS

		INSTITUTION				
		CWU	EWU	UW	WSU	WWU
ALL GRADUATES	AVERAGE GPA	2.960	3.080	3.050	2.870	3.000
CERTIFICATE EARNERS	AVERAGE GPA	3.161	3.140	3.243	3.084	3.167
	LOW GPA	2.100	2.170	2.220	2.120	2.360
	HIGH GPA	3.970	3.940	3.880	3.980	3.950
BREAKDOWN BY THE ALL-GRAD AVERAGE GPA						
# ABOVE ALL-GRAD AVG	% OF ALL C-EARNERS	66.038	54.118	69.784	71.111	60.421
# BELOW ALL-GRAD AVG	% OF ALL C-EARNERS	33.962	45.882	30.216	28.889	31.579
QUINTILE BREAKDOWN						
# IN BOTTOM QUINT	% OF ALL C-EARNERS	8.491	14.118	10.791	5.926	7.018
# IN SECOND QUINT	% OF ALL C-EARNERS	13.679	20.000	19.424	13.333	13.450
# IN THIRD QUINT	% OF ALL C-EARNERS	18.396	18.235	13.669	22.222	25.731
# IN FOURTH QUINT	% OF ALL C-EARNERS	24.057	18.824	25.899	30.370	26.901
# IN TOP QUINT	% OF ALL C-EARNERS	35.377	28.824	30.216	28.148	26.901

TABLE A-2: CUMULATIVE GPA COMPARISONS FOR STUDENTS WITH SECONDARY ENDORSEMENTS

		INSTITUTION				
		CWU	EWU	UW	WSU	WWU
ALL GRADUATES	AVERAGE GPA	2.960	3.000	3.050	2.870	3.000
CERTIFICATE EARNERS	AVERAGE GPA	2.978	3.073	3.212	3.028	3.063
	LOW GPA	2.150	2.040	2.500	2.080	2.400
	HIGH GPA	3.890	3.900	3.910	3.960	3.980
BREAKDOWN BY THE ALL-GRAD AVERAGE GPA						
# ABOVE ALL-GRAD AVG	% OF ALL C-EARNERS	50.806	51.948	71.429	61.538	53.750
# BELOW ALL-GRAD AVG	% OF ALL C-EARNERS	49.194	48.052	28.571	38.462	46.250
QUINTILE BREAKDOWN						
# IN BOTTOM QUINT	% OF ALL C-EARNERS	12.903	21.429	10.204	12.821	12.500
# IN SECOND QUINT	% OF ALL C-EARNERS	25.000	20.130	18.367	16.239	19.375
# IN THIRD QUINT	% OF ALL C-EARNERS	20.161	15.584	25.510	16.239	26.250
# IN FOURTH QUINT	% OF ALL C-EARNERS	21.774	24.026	15.306	23.932	24.375
# IN TOP QUINT	% OF ALL C-EARNERS	20.161	18.831	30.612	30.769	17.500

TABLE A-3:CUMULATIVE GPA COMPARISONS FOR STUDENTS WITH K-12 ENDORSEMENTS

		INSTITUTION				
		CWU	EWU	UW	WSU	WWU
ALL GRADUATES	AVERAGE GPA	2.960	3.000	3.050	2.670	3.000
CERTIFICATE EARNERS	AVERAGE GPA	3.201	3.152	3.289	3.278	2.962
	LOW GPA	2.150	2.340	2.690	2.660	2.540
	HIGH GPA	3.970	3.870	3.620	3.700	3.630
BREAKDOWN BY THE ALL-GRAD AVERAGE GPA						
# ABOVE ALL-GRAD AVG	% OF ALL C-EARNERS	68.354	75.000	93.333	88.889	45.000
# BELOW ALL-GRAD AVG	% OF ALL C-EARNERS	31.646	25.000	6.667	11.111	55.000
QUINTILE BREAKDOWN						
# IN BOTTOM QUINT	% OF ALL C-EARNERS	2.532	25.000	6.667		10.000
# IN SECOND QUINT	% OF ALL C-EARNERS	12.658			11.111	35.000
# IN THIRD QUINT	% OF ALL C-EARNERS	26.582	25.000	33.333	11.111	30.000
# IN FOURTH QUINT	% OF ALL C-EARNERS	18.987	25.000	33.333	33.333	20.000
# IN TOP QUINT	% OF ALL C-EARNERS	39.241	25.000	26.667	44.444	5.000

Table A-4: QUARTER HOURS TAKEN BY ELEMENTARY TEACHERS:

	ALL INSTITUTIONS			INSTITUTION														
				CMU			EMU			UM			MSU			NMU		
	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW
TOTAL	219	391	181	200	356	181	217	298	183	239	391	200	212	310	182	224	259	181
TOTAL NON-EDUCATION	123	283	61	106	238	61	107	204	68	154	283	119	117	231	85	136	191	101
TOTAL EDUCATION	96	149	60	100	148	63	110	149	70	84	107	67	95	120	73	88	116	60
TOTAL UNCLASSIFIED	1	22	0	3	16	0	0	2	0	1	22	0	0	0	0	1	10	0
BIOLOGY -- NON-EDUC.	7	41	0	6	17	0	5	18	0	8	41	0	9	32	5	8	34	0
" -- EDUCATION	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
" -- TOTAL	7	41	0	6	17	0	5	18	0	8	41	0	9	32	5	8	34	0
OTHER SCIENCES -- NON-EDUC.	8	49	0	6	28	0	7	37	0	12	48	0	7	29	0	10	37	0
" -- EDUCATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
" -- TOTAL	8	48	0	6	28	0	7	37	0	12	48	0	7	29	0	10	37	0
FOR. LANG/COMM -- NON-EDUC.	14	77	0	13	44	0	12	77	0	19	73	0	15	29	0	10	31	0
" -- EDUCATION	1	10	0	1	7	0	2	10	0	1	6	0	1	9	0	1	6	0
" -- TOTAL	15	84	0	14	44	0	14	84	0	21	73	3	16	34	0	11	31	3
EDUCATION DEPARTMENTS TOTAL	78	133	33	81	128	42	91	133	55	77	95	61	76	101	59	65	100	33
ENGLISH -- NON-EDUC.	13	60	0	13	44	3	15	38	5	16	60	0	10	45	5	11	30	4
" -- EDUCATION	2	10	0	2	3	0	2	7	0	1	10	0	0	0	0	3	8	0
" -- TOTAL	15	70	0	15	47	6	17	45	5	17	70	0	10	45	5	15	32	5
OTHER HUMANITIES- NON-EDUC.	14	98	0	16	50	2	14	84	0	14	67	0	10	51	0	16	98	5
" -- EDUCATION	3	12	0	4	7	0	3	6	0	2	12	0	3	8	0	2	10	0
" -- TOTAL	17	108	0	19	50	5	17	90	0	15	67	0	14	59	3	18	109	5
HISTORY -- NON-EDUC.	8	61	0	6	24	0	5	15	0	8	50	0	9	54	0	13	61	0
" -- EDUCATION	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
" -- TOTAL	9	61	0	6	24	0	5	15	0	8	50	0	10	59	0	13	61	0
OTHER SOCIAL SCI- NON-EDUC.	35	182	5	24	96	5	24	114	9	56	182	15	39	77	9	35	77	8
" -- EDUCATION	4	14	0	8	14	0	0	0	0	0	3	0	2	5	0	6	13	0
" -- TOTAL	38	182	9	31	96	11	24	114	9	56	182	15	40	82	9	41	88	10
MATHEMATICS -- NON-EDUC.	6	46	0	6	19	0	5	27	0	6	26	0	5	15	0	9	46	0
" -- EDUCATION	5	34	0	2	12	0	10	34	0	2	9	0	5	9	0	7	10	0
" -- TOTAL	11	50	0	7	27	0	15	43	4	8	35	0	10	21	5	16	50	5
OTHER FIELDS -- NON-EDUC.	18	87	0	17	59	2	18	87	0	16	78	0	14	27	0	24	87	0
" -- EDUCATION	3	22	0	3	9	0	3	22	0	0	0	0	8	14	0	4	14	0
" -- TOTAL	21	90	0	20	59	4	21	87	0	16	78	0	21	38	6	27	90	0

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TABLE A-5: QUARTER HOURS OF COURSE WORK TAKEN BY ELEMENTARY TEACHERS

		ALL INSTITUTIONS							
		MAJORS				NON-MAJORS			
		PERCENT OF STUDENTS	AVERAGE QUARTER HOURS	LOW	HIGH	PERCENT OF STUDENTS	AVERAGE QUARTER HOURS	LOW	HIGH
SUBJECT									
BIOLOGY	-NON-EDUCATION					100.00	6.99	0	41
	- EDUCATION					100.00	0.03	0	5
	- TOTAL					100.00	7.02	0	41
OTHER SCIENCE	-NON-EDUCATION	3.23	39.00	28	48	96.77	7.13	0	37
	- EDUCATION	3.23	0.00	0	0	96.77	0.00	0	0
	- TOTAL	3.23	39.00	28	48	96.77	7.13	0	37
COMMUNICATION & LANGUAGE	-NON-EDUCATION	3.23	47.40	9	77	96.77	12.57	0	44
	- EDUCATION	3.23	4.00	0	10	96.77	1.13	0	9
	- TOTAL	3.23	51.40	9	84	96.77	13.69	0	44
EDUCATION	-NON-EDUCATION								
	- EDUCATION	63.23	82.60	40	133	36.77	68.93	33	106
	- TOTAL								
ENGLISH	-NON-EDUCATION	3.87	49.33	38	60	96.13	11.92	0	45
	- EDUCATION	3.87	5.00	0	10	96.13	1.60	0	8
	- TOTAL	3.87	54.33	45	70	96.13	13.52	0	45
OTHER HUMANITIES	-NON-EDUCATION	5.81	52.89	15	98	94.19	11.98	0	84
	- EDUCATION	5.81	5.44	0	12	94.19	2.47	0	7
	- TOTAL	5.81	58.33	15	108	94.19	14.45	0	90
HISTORY	-NON-EDUCATION	3.23	55.00	50	61	96.77	7.05	0	45
	- EDUCATION	3.23	1.00	0	5	96.77	0.03	0	5
	- TOTAL	3.23	56.00	50	61	96.77	7.08	0	50
OTHER SOCIAL SCIENCES	-NON-EDUCATION	12.26	73.53	34	182	87.74	28.99	5	114
	- EDUCATION	12.26	2.11	0	13	87.74	3.81	0	14
	- TOTAL	12.26	75.63	34	182	87.74	32.79	9	114
MATHEMATICS	-NON-EDUCATION	1.94	19.67	4	46	98.06	5.80	0	27
	- EDUCATION	1.94	23.67	4	34	98.06	4.74	0	20
	- TOTAL	1.94	43.33	37	50	98.06	10.55	0	35
OTHER SUBJECTS	-NON-EDUCATION	4.52	58.00	29	87	95.48	15.68	0	87
	- EDUCATION	4.52	0.43	0	3	95.48	3.48	0	22
	- TOTAL	4.52	58.43	29	90	95.48	19.16	0	87

Table A-6: QUARTER HOURS TAKEN BY SECONDARY BIOLOGY TEACHERS:

	ALL INSTITUTIONS			INSTITUTION														
				CWU			EWU			UI			WSU			WWU		
	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW
TOTAL	251	370	194	252	352	194	240	319	198	267	327	238	248	312	212	269	370	202
TOTAL NON-EDUCATION	192	319	125	200	307	128	180	273	125	203	257	183	187	252	149	216	319	153
TOTAL EDUCATION	58	96	41	46	51	41	59	73	41	64	74	51	60	96	46	51	65	45
TOTAL UNCLASSIFIED	1	15	0	5	15	0	1	3	0	0	0	0	0	5	0	0	0	0
BIOLOGY -- NON-EDUC.	52	166	16	69	90	49	38	73	16	61	88	41	51	90	23	69	166	31
" -- EDUCATION	1	5	0	0	0	0	1	3	0	0	0	0	4	5	0	0	0	0
" -- TOTAL	53	166	19	69	90	49	38	76	19	61	88	41	56	95	24	69	166	31
OTHER SCIENCES -- NON-EDUC.	32	93	0	35	93	5	19	56	0	41	69	5	31	52	5	54	69	33
" -- EDUCATION	0	3	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0
" -- TOTAL	32	93	0	35	93	5	20	56	0	41	69	5	31	52	5	54	69	33
FOR. LANG/COMM -- NON-EDUC.	10	76	0	8	17	0	9	22	3	17	76	5	8	21	0	13	37	3
" -- EDUCATION	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
" -- TOTAL	11	76	0	8	17	0	9	22	3	17	76	5	8	21	0	14	37	3
EDUCATION DEPARTMENTS TOTAL	46	88	33	37	39	33	43	54	38	60	70	51	47	88	33	39	43	35
ENGLISH -- NON-EDUC.	15	72	0	12	21	4	14	62	6	12	20	6	21	72	0	9	16	4
" -- EDUCATION	0	5	0	0	0	0	0	4	0	0	0	0	1	5	0	0	0	0
" -- TOTAL	15	77	0	12	21	4	15	66	6	12	20	6	22	77	0	9	16	4
OTHER HUMANITIES- NON-EDUC.	15	119	0	12	18	9	13	33	0	18	70	0	19	119	0	8	16	0
" -- EDUCATION	0	15	0	0	0	0	0	0	0	0	0	0	2	15	0	0	0	0
" -- TOTAL	15	128	0	12	18	9	13	33	0	18	70	0	21	128	0	8	16	0
HISTORY -- NON-EDUC.	7	53	0	4	8	0	7	40	0	5	10	0	8	53	0	7	14	3
" -- EDUCATION	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
" -- TOTAL	7	58	0	4	8	0	7	40	0	5	10	0	9	58	0	7	14	3
OTHER SOCIAL SCI- NON-EDUC.	24	113	8	26	37	18	30	113	8	24	30	14	18	31	10	20	42	10
" -- EDUCATION	2	11	0	9	11	8	0	0	0	0	0	0	1	10	0	10	10	7
" -- TOTAL	26	113	8	35	45	26	30	113	8	24	30	14	19	31	10	30	52	20
MATHEMATICS -- NON-EDUC.	13	65	0	20	65	0	10	45	0	19	28	0	11	17	3	17	28	13
" -- EDUCATION	1	12	0	0	0	0	0	5	0	4	12	0	0	0	0	0	0	0
" -- TOTAL	14	65	0	20	65	0	10	45	0	23	40	0	11	17	3	17	28	13
OTHER FIELDS -- NON-EDUC.	24	96	0	14	24	3	40	96	2	7	40	0	19	53	4	20	65	2
" -- EDUCATION	7	33	0	1	6	0	15	29	0	0	2	0	5	33	0	2	17	0
" -- TOTAL	31	96	0	16	27	3	54	96	2	7	40	0	24	78	4	23	65	2

Table A-7: QUARTER HOURS TAKEN BY SECONDARY ENGLISH/LA TEACHERS;

	ALL INSTITUTIONS			INSTITUTION														
				CWU			EWU			UW			WSU			WWU		
	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW
TOTAL	236	370	182	260	356	198	224	322	182	243	370	194	238	329	188	233	353	188
TOTAL NON-EDUCATION	178	315	124	207	306	145	168	257	129	182	315	124	174	249	139	176	304	133
TOTAL EDUCATION	58	102	40	53	78	40	55	75	40	62	75	48	63	102	47	58	72	46
TOTAL UNCLASSIFIED	0	16	0	0	0	0	1	5	0	0	0	0	1	16	0	0	5	0
BIOLOGY -- NON-EDUC.	9	78	0	4	10	0	11	78	0	11	60	0	15	50	5	4	12	0
" -- EDUCATION	0	5	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0
" -- TOTAL	9	78	0	4	10	0	11	78	0	11	60	0	16	55	5	4	12	0
OTHER SCIENCES -- NON-EDUC.	9	36	0	6	20	0	7	27	0	9	24	0	10	35	0	10	36	0
" -- EDUCATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
" -- TOTAL	9	36	0	6	20	0	7	27	0	9	24	0	10	35	0	10	36	0
FOR. LANG/COMM -- NON-EDUC.	24	98	0	31	62	11	18	50	0	32	97	5	19	59	0	23	98	0
" -- EDUCATION	1	7	0	1	7	0	1	5	0	1	5	0	1	5	0	1	4	0
" -- TOTAL	24	98	0	33	62	11	19	54	0	32	97	5	19	59	0	24	98	3
EDUCATION DEPARTMENTS TOTAL	47	72	28	41	61	32	45	65	28	57	64	48	49	72	39	43	60	34
ENGLISH -- NON-EDUC.	58	165	9	66	165	22	51	85	9	70	154	41	46	72	23	60	75	12
" -- EDUCATION	4	14	0	5	11	0	3	4	0	3	10	0	4	14	0	5	12	0
" -- TOTAL	62	165	9	71	165	22	54	85	9	76	159	41	50	77	28	65	83	16
OTHER HUMANITIES- NON-EDUC.	17	138	0	25	68	3	21	138	5	14	44	0	11	30	0	18	57	0
" -- EDUCATION	0	8	0	0	0	0	1	8	0	0	3	0	1	5	0	0	0	0
" -- TOTAL	17	146	0	25	68	3	22	146	5	14	44	0	12	35	0	18	57	0
HISTORY -- NON-EDUC.	15	73	0	8	27	0	11	73	0	10	30	0	20	60	0	20	65	0
" -- EDUCATION	0	5	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0
" -- TOTAL	15	73	0	8	27	0	11	73	0	10	30	0	22	65	0	20	65	0
OTHER SOCIAL SCI- NON-EDUC.	29	135	5	31	49	15	29	108	10	25	50	13	36	135	6	27	113	5
" -- EDUCATION	3	10	0	7	8	0	0	3	0	0	3	0	0	0	0	8	10	0
" -- TOTAL	32	135	6	37	49	23	29	108	10	26	50	13	35	135	6	35	113	15
MATHEMATICS -- NON-EDUC.	5	26	0	5	10	0	6	13	0	5	15	0	6	26	0	6	15	0
" -- EDUCATION	0	9	0	0	0	0	1	5	0	0	3	0	1	9	0	0	0	0
" -- TOTAL	6	26	0	5	10	0	7	13	0	5	15	0	6	26	0	6	15	0
OTHER FIELDS -- NON-EDUC.	12	93	0	31	93	2	15	53	0	6	23	0	12	44	0	8	26	0
" -- EDUCATION	2	45	0	0	0	0	4	28	0	0	0	0	6	45	0	1	10	0
" -- TOTAL	14	93	0	31	93	2	19	81	0	6	23	0	17	89	3	9	33	0

Table A-8: QUARTER HOURS TAKEN BY SECONDARY HIST/GOVT TEACHERS:

	ALL INSTITUTIONS			INSTITUTION					
				UH			MHU		
	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW
TOTAL	239	360	102	245	360	189	233	328	182
TOTAL NON-EDUCATION	185	285	128	187	276	139	182	285	128
TOTAL EDUCATION	55	84	43	58	84	50	51	63	43
TOTAL UNCLASSIFIED	0	4	0	0	0	0	0	4	0
BIOLOGY -- NON-EDUC.	6	14	0	7	13	0	5	14	0
" -- EDUCATION	0	0	0	0	0	0	0	0	0
" -- TOTAL	6	14	0	7	13	0	5	14	0
OTHER SCIENCES -- NON-EDUC.	10	25	0	9	25	0	11	20	4
" -- EDUCATION	0	0	0	0	0	0	0	0	0
" -- TOTAL	10	25	0	9	25	0	11	20	4
FOR. LANG/COMM -- NON-EDUC.	21	117	0	27	117	0	15	62	0
" -- EDUCATION	0	3	0	0	3	0	1	3	0
" -- TOTAL	22	117	0	27	117	0	16	65	3
EDUCATION DEPARTMENTS TOTAL	49	81	33	57	81	50	40	50	33
ENGLISH -- NON-EDUC.	18	74	3	19	74	3	17	67	4
" -- EDUCATION	1	8	0	0	5	0	1	8	0
" -- TOTAL	19	75	3	20	74	3	18	75	4
OTHER HUMANITIES- NON-EDUC.	13	47	0	11	28	0	15	47	5
" -- EDUCATION	0	0	0	0	0	0	0	0	0
" -- TOTAL	13	47	0	11	28	0	15	47	5
HISTORY -- NON-EDUC.	56	155	19	51	72	19	62	155	23
" -- EDUCATION	0	0	0	0	0	0	0	0	0
" -- TOTAL	56	155	19	51	72	19	62	155	23
OTHER SOCIAL SCI- NON-EDUC.	43	108	13	51	108	13	35	75	15
" -- EDUCATION	4	10	0	0	3	0	8	10	7
" -- TOTAL	47	108	13	51	108	13	43	85	25
MATHEMATICS -- NON-EDUC.	5	20	0	4	20	0	6	15	0
" -- EDUCATION	0	3	0	0	3	0	0	0	0
" -- TOTAL	5	20	0	4	20	0	6	15	0
OTHER FIELDS -- NON-EDUC.	12	74	0	9	25	0	15	74	0
" -- EDUCATION	0	6	0	0	0	0	1	6	0
" -- TOTAL	12	74	0	9	25	0	16	74	0

Table A-9: QUARTER HOURS TAKEN BY SECONDARY MATHEMATICS TEACHERS:

	ALL INSTITUTIONS			INSTITUTION														
				CHU			EIU			UN			WSU			WIU		
	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW
TOTAL	238	352	180	234	352	185	231	265	197	270	331	225	216	246	183	226	292	100
TOTAL NON-EDUCATION	177	307	125	183	307	129	173	214	137	198	247	138	155	177	143	170	250	125
TOTAL EDUCATION	60	96	40	49	53	43	57	81	44	72	96	62	61	91	40	56	87	42
TOTAL UNCLASSIFIED	1	10	0	2	5	0	1	10	0	0	0	0	1	5	0	0	0	0
BIOLOGY -- NON-EDUC.	12	80	0	19	76	0	9	67	0	18	80	0	9	18	5	4	16	0
" -- EDUCATION	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
" -- TOTAL	12	80	0	19	76	0	9	70	0	18	80	0	9	18	5	4	16	0
OTHER SCIENCES -- NON-EDUC.	28	107	0	29	93	0	24	86	0	46	107	17	11	35	0	26	74	0
" -- EDUCATION	1	10	0	0	0	0	0	0	0	2	10	0	0	0	0	1	3	0
" -- TOTAL	29	107	0	29	93	0	24	86	0	48	107	17	11	35	0	27	74	0
FOR. LANG/COMM -- NON-EDUC.	11	85	0	21	85	0	11	19	3	8	20	0	10	26	5	5	10	3
" -- EDUCATION	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
" -- TOTAL	11	85	0	21	85	0	11	19	3	9	20	0	10	26	5	5	10	3
EDUCATION DEPARTMENTS TOTAL	46	75	22	32	37	22	46	70	39	58	75	50	42	57	32	42	72	31
ENGLISH -- NON-EDUC.	11	26	4	11	15	4	11	16	5	11	26	5	8	11	5	14	25	4
" -- EDUCATION	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0
" -- TOTAL	11	27	4	11	15	4	11	16	5	11	26	5	8	11	5	15	27	4
OTHER HUMANITIES- NON-EDUC.	13	141	0	11	24	5	21	141	0	13	30	0	6	12	0	10	15	5
" -- EDUCATION	0	5	0	1	3	0	1	5	0	0	0	0	0	0	0	0	0	0
" -- TOTAL	13	146	0	12	24	5	21	146	0	13	30	0	6	12	0	10	15	5
HISTORY -- NON-EDUC.	5	27	0	4	10	0	2	5	0	6	15	0	9	27	0	7	15	0
" -- EDUCATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
" -- TOTAL	5	27	0	4	10	0	2	5	0	6	15	0	9	27	0	7	15	0
OTHER SOCIAL SCI- NON-EDUC.	24	137	8	20	25	12	21	36	10	32	137	8	17	23	9	30	55	15
" -- EDUCATION	3	10	0	8	10	4	0	3	0	1	5	0	0	0	0	9	10	7
" -- TOTAL	27	142	8	27	33	22	21	39	10	33	142	8	17	23	9	39	62	25
MATHEMATICS -- NON-EDUC.	53	124	15	51	65	31	60	86	15	50	124	23	44	59	29	59	107	38
" -- EDUCATION	7	14	0	7	14	0	6	13	0	10	12	0	4	8	0	4	8	0
" -- TOTAL	59	124	15	58	72	39	66	94	15	60	124	35	49	64	29	63	107	38
OTHER FIELDS -- NON-EDUC.	20	95	0	19	34	3	15	35	2	12	71	0	42	95	5	15	42	5
" -- EDUCATION	4	35	0	1	3	0	3	14	0	1	15	0	15	35	2	0	0	0
" -- TOTAL	24	124	0	20	35	3	18	44	3	14	86	0	57	124	8	15	42	5

Table A-10: QUARTER HOURS TAKEN BY SECONDARY SOCIAL SCI. TEACHERS:

	ALL INSTITUTIONS			INSTITUTION														
				CWU			EWU			UW			WSU			WWU		
	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW	AVG	HIGH	LOW
TOTAL	236	360	182	224	322	184	229	324	182	247	360	189	234	329	183	248	338	194
TOTAL NON-EDUCATION	177	281	108	180	281	142	168	265	108	192	276	139	170	249	115	191	252	137
TOTAL EDUCATION	58	104	32	43	49	32	60	104	38	56	84	37	64	96	40	57	86	39
TOTAL UNCLASSIFIED	0	11	0	1	4	0	0	6	0	0	0	0	0	11	0	0	5	0
BIOLOGY -- NON-EDUC.	8	32	0	6	14	0	9	31	0	7	19	0	11	32	5	5	18	0
" -- EDUCATION	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
" -- TOTAL	8	32	0	6	14	0	9	31	0	7	19	0	11	32	5	5	18	0
OTHER SCIENCES -- NON-EDUC.	8	54	0	5	15	0	8	54	0	10	35	0	7	18	0	9	17	0
" -- EDUCATION	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
" -- TOTAL	8	54	0	5	15	0	8	54	0	10	35	0	7	18	0	9	17	0
FOR. LANG/COMM -- NON-EDUC.	15	117	0	10	24	0	14	87	0	23	117	0	14	95	3	16	77	0
" -- EDUCATION	0	5	0	0	0	0	0	0	0	0	3	0	0	5	0	1	4	0
" -- TOTAL	16	117	0	10	24	0	14	87	0	24	117	0	14	100	3	17	81	0
EDUCATION DEPARTMENTS TOTAL	46	88	22	34	39	22	47	70	35	55	81	23	45	88	33	47	84	30
ENGLISH -- NON-EDUC.	16	74	0	11	31	5	21	66	5	16	74	3	16	59	0	12	49	3
" -- EDUCATION	1	14	0	0	0	0	1	4	0	0	0	0	1	14	0	1	4	0
" -- TOTAL	17	74	0	11	31	5	22	70	5	16	74	3	17	73	0	12	53	3
OTHER HUMANITIES- NON-EDUC.	12	74	0	16	42	5	11	33	0	12	44	0	8	26	0	19	74	5
" -- EDUCATION	0	5	0	0	0	0	0	5	0	0	0	0	0	3	0	0	0	0
" -- TOTAL	12	74	0	16	42	5	12	33	0	12	44	0	8	26	0	19	74	5
HISTORY -- NON-EDUC.	34	106	0	48	78	33	29	73	0	42	70	10	29	60	0	40	106	8
" -- EDUCATION	1	5	0	1	2	0	0	0	0	0	0	0	2	5	0	0	0	0
" -- TOTAL	35	106	0	49	78	33	29	73	0	42	70	10	30	65	0	40	106	8
OTHER SOCIAL SCI- NON-EDUC.	48	138	8	51	105	13	39	108	8	64	138	13	39	135	9	64	101	26
" -- EDUCATION	2	10	0	7	9	4	0	3	0	0	3	0	0	0	0	7	10	0
" -- TOTAL	50	138	8	58	109	21	39	108	8	65	138	13	39	135	9	71	111	35
MATHEMATICS -- NON-EDUC.	5	50	0	4	10	0	5	20	0	5	20	0	7	50	0	5	11	0
" -- EDUCATION	0	15	0	0	0	0	1	15	0	0	3	0	1	9	0	0	0	0
" -- TOTAL	6	55	0	4	10	0	6	25	0	5	20	0	8	55	0	5	11	0
OTHER FIELDS -- NON-EDUC.	29	98	0	30	89	4	34	98	0	11	48	0	39	90	0	20	76	0
" -- EDUCATION	8	54	0	1	7	0	11	54	0	1	14	0	15	39	0	1	16	0
" -- TOTAL	37	138	0	31	96	4	45	138	0	12	62	0	55	125	3	21	79	0

Table A-11

DISTRIBUTIONS OF WPCT SCORES
NUMBER WITH EACH SCORE=VERBAL

FREQUENCY BAR CHART

MIDPOINT SCORE		FREQ	CUM. FREQ	PERCENT	CUM. PERCENT
	|				
20	|	0	0	0.00	0.00
21	|	0	0	0.00	0.00
22	|	0	0	0.00	0.00
23	|	0	0	0.00	0.00
24	|	0	0	0.00	0.00
25	|	0	0	0.00	0.00
26	|X	1	1	0.10	0.10
27	|X	1	2	0.10	0.21
28	|X	1	3	0.10	0.31
29	|X	1	4	0.10	0.41
30	|XXX	3	7	0.31	0.72
31	|XXXXXX	6	13	0.62	1.34
32	|XX	2	15	0.21	1.54
33	|XXXXXXXXX	9	24	0.92	2.47
34	|XXXXXXXXX	10	34	1.03	3.49
35	|XXXXXXXXXXXXX	14	48	1.44	4.93
36	|XXXXXXXXXXXXXXXX	17	65	1.75	6.68
37	|XXXXXXXXXXXXXX	15	80	1.54	8.22
38	|XXXXXXXXXXXXXXXXXXXXXXX	24	104	2.47	10.69
39	|XXXXXXXXXXXXXXXXXXXXXXXXXXX	30	134	3.08	13.77
40	|XXXXXXXXXXXXXXXXXXXXX	24	158	2.47	16.24
41	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	38	196	3.91	20.14
42	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	41	237	4.21	24.36
43	|XXXXXXXXXXXXXXXXXXXXXXXX	28	265	2.88	27.24
44	|XXXXXXXXXXXXXXXXXXXXXXXXXXXX	32	297	3.29	30.52
45	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	39	336	4.01	34.53
46	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	52	388	5.34	39.88
47	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	38	426	3.91	43.78
48	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	39	465	4.01	47.79
49	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	36	501	3.70	51.49
50	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	39	540	4.01	55.50
51	|XXXXXXXXXXXXXXXXXXXXXXXX	30	570	3.08	58.58
52	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	38	608	3.91	62.49
53	|XXXXXXXXXXXXXXXXXXXXXX	26	634	2.67	65.16
54	|XXXXXXXXXXXXXXXXXXXXXXXXXXXX	33	667	3.39	68.55
55	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	36	703	3.70	72.25
56	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	34	737	3.49	75.75
57	|XXXXXXXXXXXXXXXXXXXXXXXX	27	764	2.77	78.52
58	|XXXXXXXXXXXXXXXXXX	21	785	2.16	80.68
59	|XXXXXXXXXXXXXXXXXXXXXXXXXXXX	33	818	3.39	84.07
60	|XXXXXXXXXXXXXXXXXXXXXXXXXX	29	847	2.98	87.05
61	|XXXXXXXXXXXXXXXXXXXXXX	24	871	2.47	89.52
62	|XXXXXXXXXXXXXXXXXX	21	892	2.16	91.68
63	|XXXXXXXXXXXXXXXXX	19	911	1.95	93.63
64	|XXXXXXXXXXXX	14	925	1.44	95.07
65	|XXXXXXXXXXXXX	14	939	1.44	96.51
66	|XXXXXX	6	945	0.62	97.12
67	|XXXXXX	6	951	0.62	97.74
68	|XXXXXXXX	9	960	0.92	98.66
69	|XXXXXX	6	966	0.62	99.28
70	|XXXX	4	970	0.41	99.69
71	|X	1	971	0.10	99.79
72	|XX	2	973	0.21	100.00

Table A-12

DISTRIBUTIONS OF WFCT SCORES
NUMBER WITH EACH SCORE=QUANTITATIVE

FREQUENCY BAR CHART

MIDPOINT SCORE		FREQ	CUM. FREQ	PERCENT	CUM. PERCENT
	|				
20	|	0	0	0.00	0.00
21	|	0	0	0.00	0.00
22	|	0	0	0.00	0.00
23	|	0	0	0.00	0.00
24	|	0	0	0.00	0.00
25	|	0	0	0.00	0.00
26	|	0	0	0.00	0.00
27	|XXX	3	3	0.31	0.31
28	|XXX	3	6	0.31	0.62
29	|X	1	7	0.10	0.72
30	|XXXXXX	6	13	0.62	1.34
31	|XXXXXXX	7	20	0.72	2.06
32	|XXXXXXXXXXX	11	31	1.13	3.19
33	|XXXXX	5	36	0.51	3.70
34	|XXXXXXXXXX	11	47	1.13	4.83
35	|XXXXXXXXXXXXXXXXX	18	65	1.85	6.68
36	|XXXXXXXXXXXXXXXXXXXXXX	24	89	2.47	9.15
37	|XXXXXXXXXXXXXXXXX	19	108	1.95	11.10
38	|XXXXXXXXXX	11	119	1.13	12.23
39	|XXXXXXXXXXXXXXXXXXXXXXXXX	26	145	2.67	14.90
40	|XXXXXXXXXXXXXXXXXX	20	165	2.06	16.96
41	|XXXXXXXXXXXXXXXXXXXXXXXXX	26	191	2.67	19.63
42	|XXXXXXXXXXXXXXXXXXX	22	213	2.26	21.89
43	|XXXXXXXXXXXXXXXXXXX	21	234	2.16	24.05
44	|XXXXXXXXXXXXXXXXXXXXXXXXXXX	29	263	2.98	27.03
45	|XXXXXXXXXXXXXXXXXXXXXXXX	26	289	2.67	29.70
46	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	37	326	3.80	33.50
47	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	39	365	4.01	37.51
48	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	38	403	3.91	41.42
49	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	34	437	3.49	44.91
50	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	40	477	4.11	49.02
51	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	37	514	3.80	52.83
52	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	46	560	4.73	57.55
53	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	32	592	3.29	60.84
54	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	42	634	4.32	65.16
55	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	37	671	3.80	68.96
56	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	36	707	3.70	72.66
57	|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	40	747	4.11	76.77
58	|XXXXXXXXXXXXXXXXXXXXXXXXXXXX	30	777	3.08	79.86
59	|XXXXXXXXXXXXXXXXXXXXXXXXXXX	30	807	3.08	82.94
60	|XXXXXXXXXXXXXXXXXXXXXXXX	26	833	2.67	85.61
61	|XXXXXXXXXXXXXXXXXXXXXXXXXX	29	862	2.98	88.59
62	|XXXXXXXXXXXX	13	875	1.34	89.93
63	|XXXXXXXXXXXXXXXXXX	21	896	2.16	92.09
64	|XXXXXXXXXXXXXX	15	911	1.54	93.63
65	|XXXXXXXXXXXXXXXX	17	928	1.75	95.38
66	|XXXXXXXXXXXX	13	941	1.34	96.71
67	|XXXXXXXXXXXXXXXX	17	958	1.75	98.46
68	|XXXXXX	6	964	0.62	99.08
69	|XXXXX	5	969	0.51	99.59
70	|XX	2	971	0.21	99.79
71	|XX	2	973	0.21	100.00